

internet

The Magazine for Internet Users
January 1997 www.iw.com

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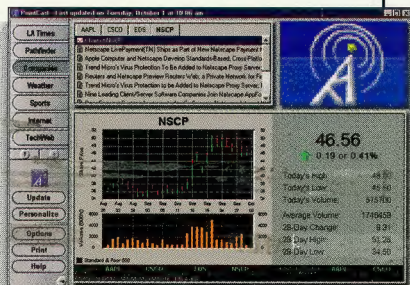


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Site Reviewers**

MARKET GURU
Geoffrey Moore:
What's Wrong
With Netscape?

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THE Best AND Worst OF THE NET 1996



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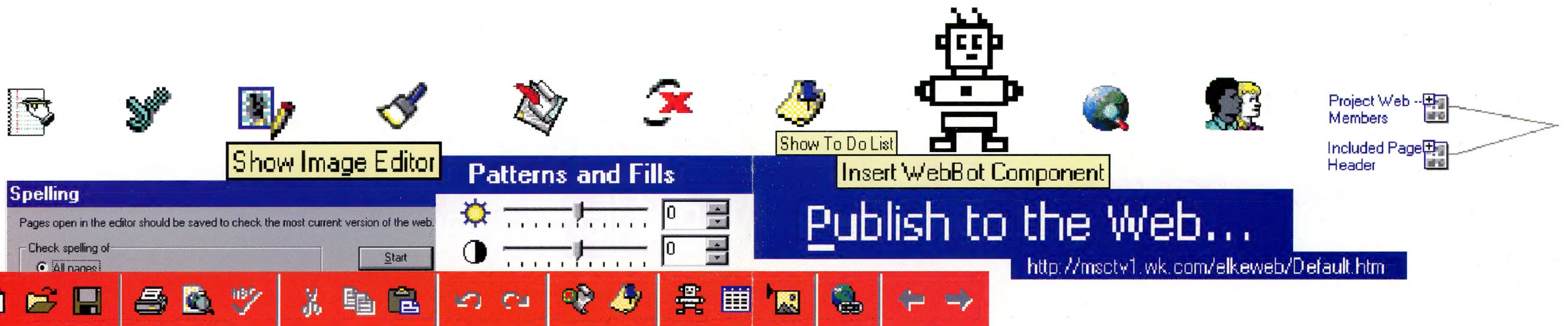
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what the hell you're doing.)**

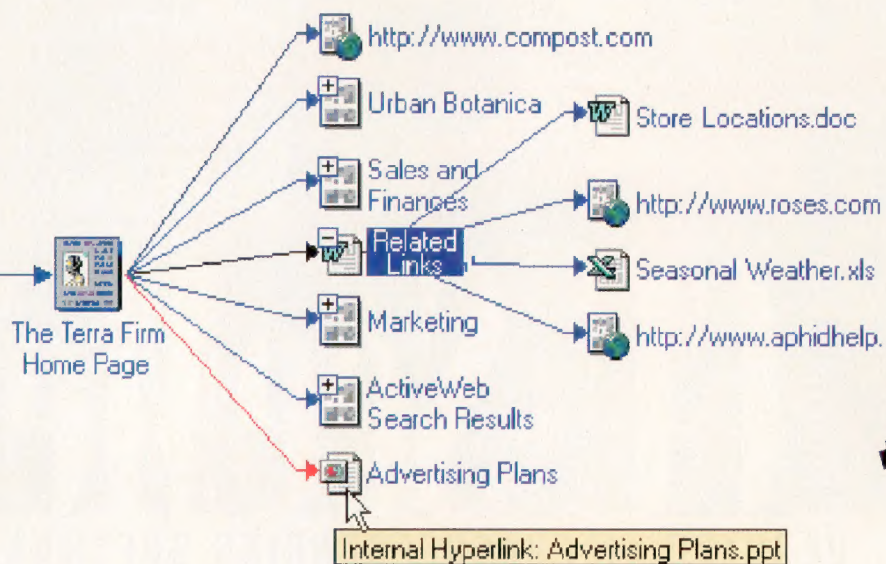


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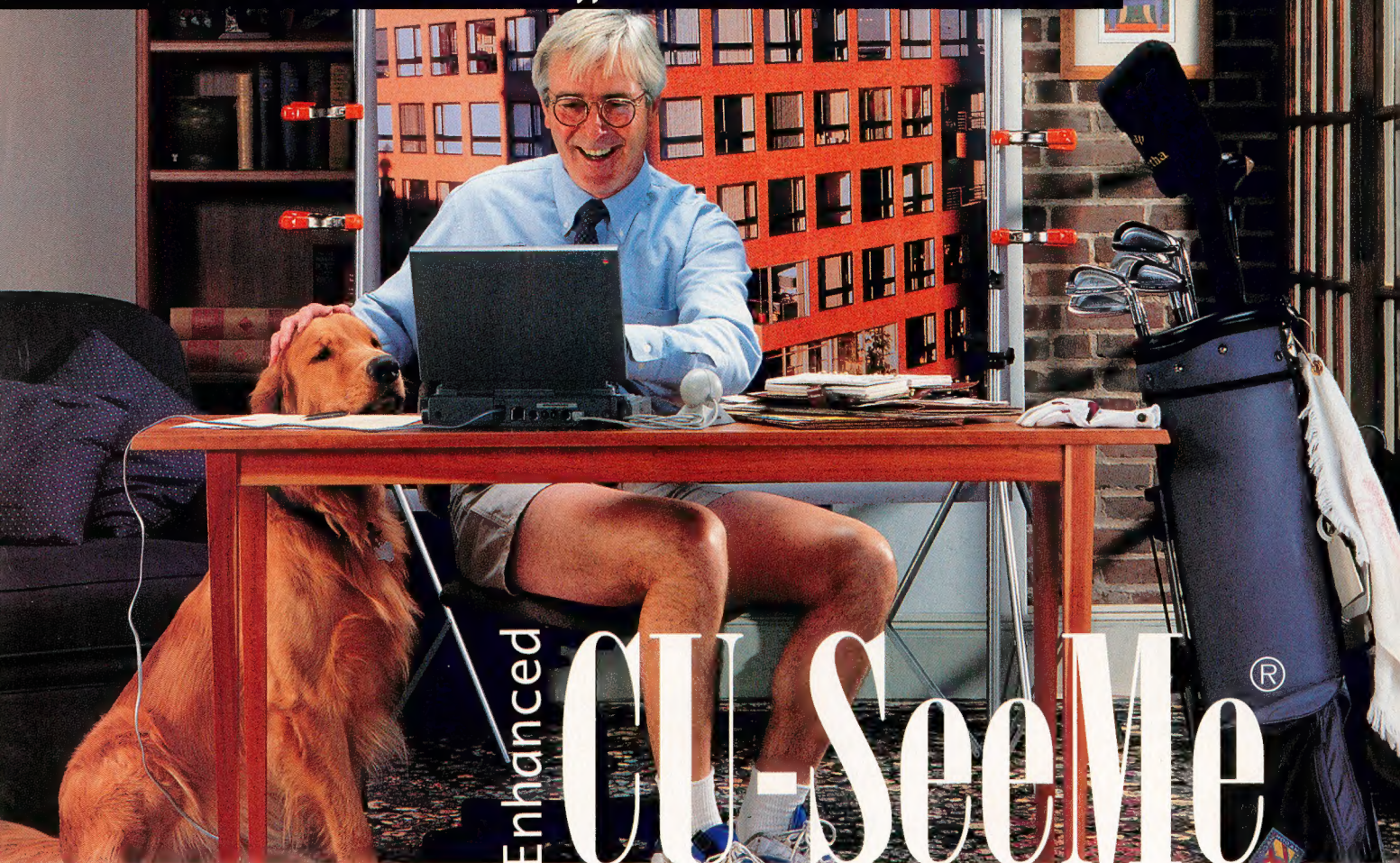
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CIRCLE NUMBER 65

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VOLUME 8 NUMBER 1

WORLD™

Features

43 COVER STORY // THE BEST AND WORST OF 1996

From great sites to the Microsoft-Netscape battle to the Communications Decency Act, from new search tools to banner ads to junk e-mail, each of *Internet World's* regular contributors picks the highs and lows of the past year and makes predictions for the Internet in 1997 and beyond.

64 The Copyright Question

Two competing schemes to protect copyright online take a legal vs. technical approach.

By David Angell and Eli Zelkha

74 Eye on the Storm

Marketing master Geoffrey Moore dissects the Internet market and tells which companies and technologies will make it—and why.

By Jeff Ubois

68 The Year 2000

On Jan. 1, 2000, the date-keeping mechanisms in thousands of software programs will malfunction, causing serious problems for numerous organizations. Is your business prepared for this future shock?

By David Appell

82 Critic's Choice

A number of Web critic services have come online to review Web sites and guide you to the best. IW Labs

examines the six leaders and rates the raters.

By Gus Venditto



Page 82



Page 68

Departments

10 FROM THE EDITOR

12 LETTERS TO THE EDITOR

18 INTERNET NEWS

28 THE SURFBOARD

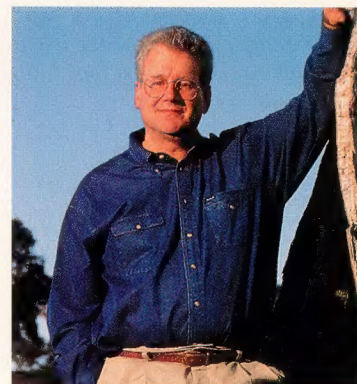
122 INTERNET FORUM

134 INDEX TO ADVERTISERS

135 EDITORIAL PRODUCT INDEX

136 LOGOUT

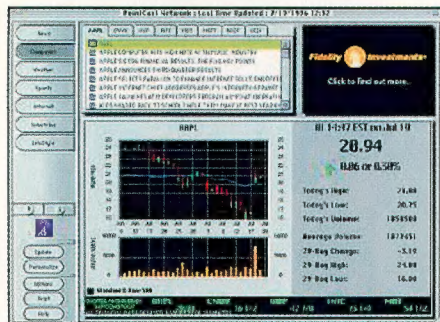
Page 74



JANUARY 1997

internet

WORLD



Page 61

IW Online

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Internet World's
Online Supplement

THE NET.ANSWER MAN

Stopping junk mail, slow connections, creating mailing lists, and other questions answered.
By Kevin M. Savetz

FOUND IT ON THE NET

*Internet 2000
What's in store for computer software in the year 2000?
Plus, this month's selection of nifty Web sites.*
By Linda J. Engelman

REC ROOM

*Watch This Space
A new space-based action game pits opponents around the world against one another—online.*
By Eric Berlin

POINTERS

*Winter Hobbies
Check out snow conditions at ski resorts with Web cams, and peruse other winter activities on the Internet.*
By Susie Davis

Columns

32 CYBERLIBRARIAN Fight for Privacy

Information about people is routinely gathered and disseminated on the Net. How much is fair game and what can you do to protect yourself?
By Cynthia N. James-Catalano

36 WEB WATCH A Tight Ship

Don't launch a sloppy Web site. Make your visitors happy by structuring your online content through careful planning.
By Alexandra Fisher

40 MONEY TRAIL Partnering Pitfalls

While online guides are offering local print publications enticing deals, publishers should look closely before they leap.
By Rosalind Resnick

98 BOTTOM LINE Traffic Sense

Local Internet routing could be a way to ease congestion and lower costs, but consumers need to lead the charge.
By Joel Snyder

104 LEADING EDGE Dialing For Dollars

Internet telephony, faxing, and voice mail promise to deliver substantial cost savings and give businesses greater network control.
By Jeff Pulver

108 WEB PAGE WORKSHOP Activating ActiveX

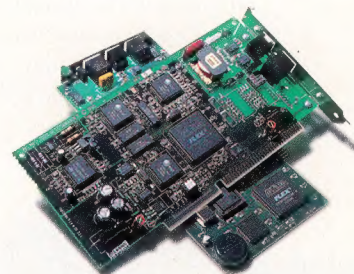
ActiveX is Microsoft's technology for placing prefabricated features on Web pages. This tutorial will help you put it to work on your pages.
By Aaron Weiss

114 KANTOR GROUP Microsoft vs. Netscape

As Microsoft and Netscape begin their war for the Internet users' desktops, which will prevail—love or money?



Page 41



Page 22



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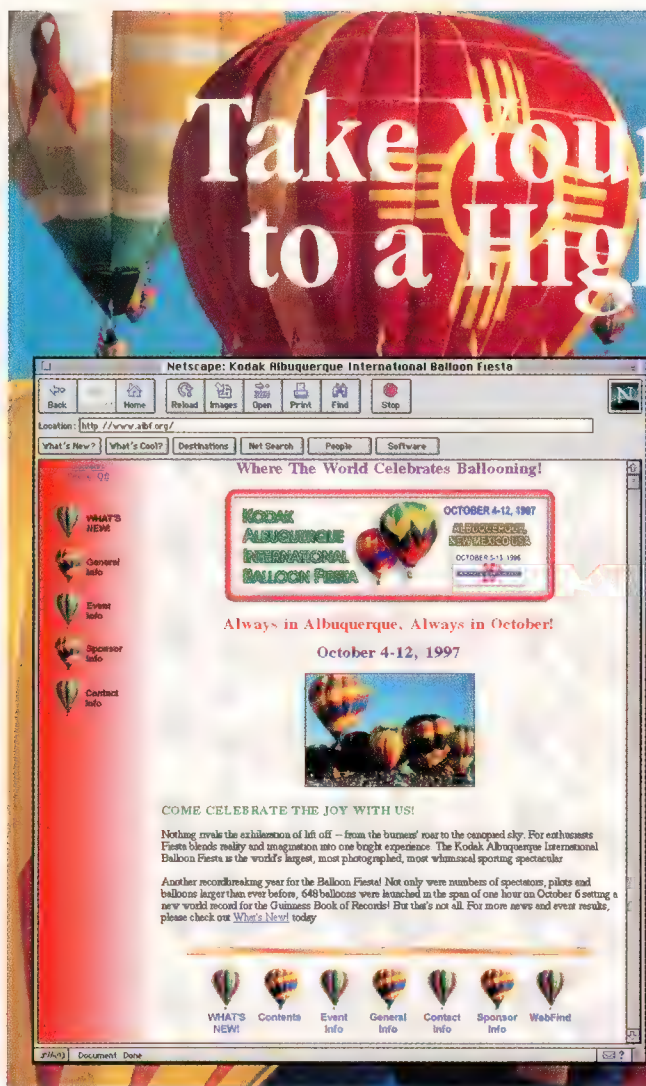
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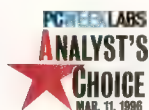


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Best Foot Forward

AS ANOTHER YEAR DRAWS TO A CLOSE, WE AGAIN LOOK BACK AND examine the best and worst the Internet had to offer. Last month we looked at the state of the Net in terms of its growth stats, demographics, and technological evolution. This month we take a more emotional

measure of the Net as our regular contributors provide their views of the best and worst of the Internet in 1996. We also rate the site raters—services that have set themselves up as authorities in choosing the top Web sites (“Critic’s Choice,” p. 80).

Besides sites, there are a number of areas in which to gauge the best and worst of the Internet—including technology, political issues, and how people use the Net. Like a large metropolis, the Internet is an arena in which an endless array of personalities and tastes are exhibited, and in which an abundance of good will and animus are shown.

This year, as the Internet once again doubled in size (see “Off the Charts,” Dec. *IW*), its annoyance level seemed to rise in conjunction with its growth. More complaints were heard about the quantity of junk e-mail, off-topic posts, boorish behavior, and the general quality of Usenet discussions. Traffic certainly has grown worse—so much so that the number of people dialing into the Net during the evening is causing gridlock at some telephone exchanges.

Many users complain about graphics-laden sites, arguing that they take too long to download and that graphics are superfluous to a Web site’s purpose of delivering information. While slow loading time is a legitimate concern, a site’s visual impact can be as important as other types of expression—particularly for sites that represent artists, architects, art galleries, and the like. Hopefully, bandwidth soon will become so plentiful that compromises won’t be necessary.

We often hear lamentation for the good old days of the Net when it was a smaller and hallowed world. For better or worse, the Internet has grown and changed. Unlike the past



when the Net was a closed, subsidized system, anyone can join the Net today—and most users pay for their connections.

While nostalgic users may bemoan the Net’s commercialization, competition among vendors results in innovations and improvements that otherwise would not happen. The escalating war between Microsoft and Netscape, for example, has yielded enhanced products and lower prices—including free browsers, servers, and add-ons.

Look also at the developments involving network computers (NCs). Microsoft and Intel, which scoffed at the idea of low-cost NCs a year ago, have allied to produce Net PCs, aimed at lowering the cost of PC ownership in corporations. Microsoft also announced a “zero administration initiative” that would add features to its software to make it easier for companies to install, update, and administer their networked PCs.

Microsoft’s announcements were not the result of sudden Good Samaritan feelings, rather a reaction to the threat of losing a potentially lucrative new market to IBM, Netscape, Oracle, Sun, and other vendors that are producing NCs. Nor are Microsoft’s competitors motivated by altruistic concerns for users’ welfare. Their aim, according to Sun CEO Scott McNealy (*The New York Times*, Oct. 29, p. D3) is “to kill Microsoft—that’s the top priority for all of us.” Sun and the other companies that have agreed on an NC technical standard stand to benefit from a proliferation of NCs that don’t rely on Intel processors and Microsoft operating systems (see also “NC Follies,” Dec. *IW*).

While good things may result from vendor competition, not all Net benefits stem from selfish motives. Many Internet users offer their time and energy in the service of good causes, and many people make information available for the sheer pleasure of it.

The rise of the Internet will be recorded as one of the great developments in history, and having ever more people devoting their talent to the Net is among the best things happening in our society. As we move toward a new millennium, building our bridges to the future, it is a challenge to all Net users to focus this energy in the most positive way.

Michael Neubarth

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MAKE IT COUNT

One heretofore little-noticed portion of the 161-page-long Telecommunications Act of 1996 is the "Universal Service" provision [see The Kantor Group, Oct. *IW*], in which Congress set a precedent by defining libraries, schools, and rural health care providers as "universal service providers" eligible for discounted telecommunications charges, but dodged the question of how great a discount these institutions ought to receive—that was delegated to the FCC and the Federal State Joint Board on Universal Service.

It is anticipated that the Federal State Joint Board will be making its recommendation in November 1996 to the FCC, which will be issuing its final ruling in May 1997. (For more info, see <http://www.ala.org/oitp/involved.html>.)

The decisions regarding the rate of telecommunications discounts for libraries and schools is a major factor that will contribute to determining whether Americans will have equality of access to the information infrastructure or whether the Internet will further divide the United States into a society of information haves and have-nots for the foreseeable future.

If you think it's valuable and important for children to have information access in classrooms and if you want Internet access available "free of charge" in your local library—for lifelong learning, job hunting and career development needs, and recreational interests—now is the time for you to let the decision makers know your thoughts on this subject.

MARK C. GONIWIECHA
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SHARE THE WEALTH

In "Universal Access?" (Oct. *IW*), what The Kantor Group seems to miss is the purpose of government: Its job is to provide to its constituency that which supports and improves its culture and that won't be provided by others.

To those who need what's provided, it's a right. To those who don't, it's a subsidy. If you don't agree with that, take a look at your attitude about your tax break for a home mortgage, education, and business expenses.

In Sweden, a large percentage of the collective wealth is devoted to people taking care of each other. While they make less

money and have less left over, Swedes enjoy a much better lifestyle than we do. In contrast, I live in a very wealthy city. Yet I see many people living on the street because of unequal distribution of income. As a nation, I think that's self-defeating.

I believe our collective nation (one of the wealthiest in the world) can easily afford to provide Internet services to those who'd otherwise not have them. (Just transfer some of the subsidized jobs and development funds from defense to paying for Internet development and systems.)

But are such services necessary? If one puts them in a library, a few will seek them out. In a school, even more will do so.

How about in the house? I'd loan such devices and then monitor use and sites accessed. If the system is used enough for reasonable purposes, it's a good investment. Having turned drug dealers into entrepreneurs and street-gang kids into successful students and employees, such an investment could be very worthwhile—if properly supported.

And that brings all of us into the discussion.

How about sponsoring a program where those who are comfortable with the Internet and kids take on a group of kids? How about providing materials to show those kids how to use the Internet? How about creating sites on the Net that support such things? How about getting large corporations (like the ones whose CEOs I work with) to sponsor Internet centers on their sites as they do day-care centers?

Universal access can mean a lot, and the cost is really pretty trivial. One kid who doesn't go to prison for a year can yield an average savings of about \$40,000. That's a lot of set-tops.

STUART LICHTMAN, PRESIDENT
PARTNERS IN EXCELLENCE INC.
SANTA BARBARA, CALIF.
72302.771@compuserve.com

JUNK FOIL

Even though Mark Curran said ("Live with It," Letters, Dec. *IW*) we can't do anything to prevent unsolicited junk mail in our home

mailboxes, you can make a dent in it and in unsolicited phone calls, too. I have been able to significantly reduce junk mail in the past six years by notifying the Mail Preference Service, Direct Marketing Assoc., Box 9008, Farmingdale, N.Y. 11735. You just give them the various spellings of your name and ask to be removed. The same thing works for unsolicited phone calls: Contact the Telephone Preference Service, Direct Marketing Assoc., Box 9014, Farmingdale, N.Y. 11735.

JAMES M. MCBRIDE
mac34@vix.net

LIBRARIAN LAUDATORY

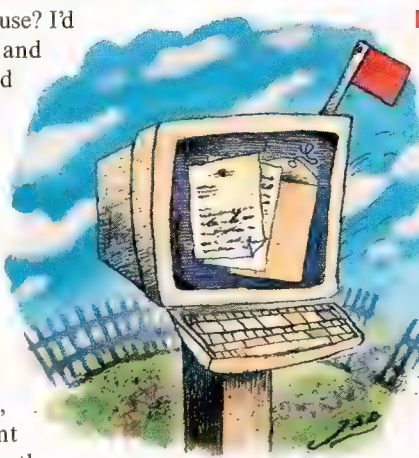
Let's hear a big round of applause for your Cyberlibrarian, Cynthia N. James-Catalano! In particular, "Look to the Librarians" (Aug. *IW*) was a well-spring of knowledge for and about librarians and other information specialists interested in good Internet resources. (By the way, one of the best sites mentioned,

Margaret Fincannon's home page, has already moved to <http://www.clever.net/cam/maf.html>.)

The existence of Ms. James-Catalano's column supports my opinion that librarians can be an essential part of the management of online resources. Librarians are often subject specialists, but more importantly, we specialize in user needs and search methods. The ever-growing need for this user focus in the online environment should call for an ever-growing number of cyberlibrarians.

I imagine the perfect information world as a place where the computer scientists and librarians work side by side to make knowledge, in all its forms, available to anyone who wants it. Thanks to *Internet World* for helping to bring about this utopia.

REBECCA TAKACS
CATHOLIC UNIVERSITY OF AMERICA
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ON TARGET

"Do Execs Get the Net?" (Nov. *IW*) was 100 percent correct and needed to be said. Today's developers are more worried about their income than understanding how an Internet and intranet can work for a company.

JIM BENSON
bensoj@hdc-usa.com

LOVE NOTE

The article "Love Connections" (Nov. *IW*) is one I could have written. I am divorced

and have posted ads on several of the personals Web sites. Two that produced the best results for me were **match.com** and **webpersonals.com**. They both have easy-to-use interfaces for placing and responding to ads and provide anonymity, which can be important these days. I haven't met Mr. Right yet, but I'm having a lot of fun and making many new friends online. Keep up the excellent work!

MARY FAHLEY
breyes@execpc.com

UPDATES AND CORRECTIONS

After publishing "E-Bomb Fallout" (Dec. *IW*), we learned that the e-mail account from which the bomber seemingly sent the messages was stolen and the signature forged. Our apologies to the real owner for any disturbance this caused.

In "ISDN in the Real World" (Oct. *IW*), the price of the U.S. Robotics Sportster ISDN adaptor was correctly given as \$399 in the product review but as \$549 in the features table. U.S. Robotics has since lowered the price of its Courier IModem from \$695 to \$549.

On the Map of the Internet (Dec. *IW*), PSINet also offers T-3 connections between Kansas City, Dallas/Fort Worth, Houston, and Austin; between Chicago and Dublin, Ohio; between Washington, D.C. and Research Triangle Park, N.C.; between Washington, D.C., Herndon, Va., Troy, N.Y., and Boston; and between Newark, N.J., and Carlisle, Pa.

The prices for ISDN in Arizona (Oct. *IW*) were transposed. The installation price is \$140 and the monthly fee is \$68. The local per-minute rate varies from \$0.02 to \$0.07.

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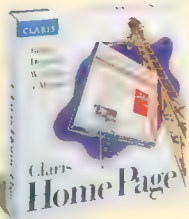
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†Translation of *vinaka vakalevu, sa moce*: thank you very much, good bye.



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Encryption Clash

The government wants your spare keys.

The White House inched toward ending a two-year stalemate with the computer industry over the export of encryption software with a plan announced in October, but privacy advocates quickly savaged it as another incarnation of the widely derided Clipper Chip initiative.

Like the original Clipper Chip, the proposal will let law enforcement agents decode files and conversations encrypted with software that can be exported. After the new policy takes effect in January 1997, businesses can temporarily export slightly stronger data-scrambling applications if they pledge to develop a "key recovery" system allowing government access to keys. Companies that have announced plans to meet those requirements include Apple,

Digital Equipment Corp., Hewlett-Packard, IBM, and Sun Microsystems.

The program is too little, too late, said Sen. Conrad Burns (R-Mont.), a sponsor of legislation that would lift the encryption-export embargo completely. "The proposal continues to insist on key escrow as a condition for lifting encryption-export controls and raises numerous questions about privacy and competitiveness," Burns said.

The administration's plan defines the 56-bit Data Encryption Standard (DES) algorithm as the strongest encryption software that can be exported. But according to a report released in January by a group of top-notch cryptographers, 56-bit DES is woefully inadequate. "To provide adequate protection against the most serious threats—well-funded



commercial enterprises or government intelligence agencies—keys used to protect data today should be at least 75 bits long," the report says.

Software companies continue to oppose the White House's scheme, arguing that they lose hundreds of millions of dollars in revenues a year because foreign customers won't buy software that's easily crackable. Law enforcement officials say the spread of virtually unbreakable encryption like Pretty Good Privacy—which uses up to 1,024-bit keys—threatens their ability to intercept communications even when armed with a court order.

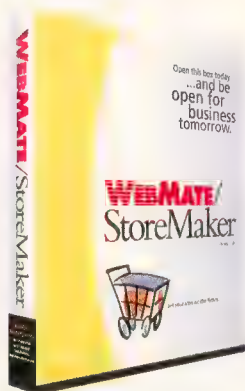
Essential to the outcome is the reaction of other countries. If they uniformly move towards a key-recovery framework, meaning that at least one government can obtain spare copies of encryption keys, the U.S. Department of Justice will be able to short-circuit the industry's strongest argument.

Some advocates are claiming a partial victory. "Congress really opened its eyes to the issue this year. We made incredible progress despite the fact that we didn't get legislation passed," said Jonah Seiger, a policy analyst at the Center for Democracy and Technology (<http://www.cdt.org>). —Declan McCullagh

E-Information Access

A revision of the Freedom of Information Act (FOIA) may make it easier to peek at government documents. The new law clarifies that the FOIA applies to both paper and electronic records. However, this is only an incremental change. Projects like Syracuse University's Transactional Records Access Clearinghouse (<http://trac.syr.edu>) have been forcing the government to release electronic records since 1989.

David Sobel, an attorney with the Electronic Privacy Information Center, points out, "Historically, Congress has enacted laws to increase the public's access, but the agencies resist the changes, and the courts uphold the narrow interpretation." —D.M.



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States Censor the Net

Restrictions get a new life.

On Nov. 1 the New York State Senate added another log to the Net-censorship fire, passing bill S210E—its own version of the Communications Decency Act (CDA)—which, barring a constitutional challenge, made speech that is “harmful to minors” punishable as a felony.

“The law will show how nonsensical state regulation of the Internet is. It will affect online users . . . not just in New York, but throughout the world,” said Ann Beeson, chief cyberlitigator for the American Civil Liberties Union. “In addition to violating the First Amendment,

the law violates the commerce clause because it regulates the actions of the online community even wholly outside the state of New York.”

This trend isn’t limited to the Empire State. In 1995 and ’96, 11 states passed laws that somehow censor speech on the Internet. They restrict everything from soliciting minors online for sex (North Carolina) to prohibiting college professors from using university-sponsored Internet resources to view sexually explicit material (Virginia).

During the fight in Congress over the CDA, Net activists attempted to have legislation

passed that would preempt states from passing their own separate regulations. Jonah Seiger of the Center for Democracy and Technology says, “The best standard is to have a uniform national standard that protects speech on the Internet, and states should be preempted from enacting restrictions that drop below that standard.” The provision failed to get through Congress, and that has allowed the states to create a muddle of regulations.

“A patchwork of state laws is a potential threat to the free flow of information on the Internet,” says Seiger. “Because the Net doesn’t know any borders, all content on the Net would have to conform to the lowest common denominator.”

These state laws sometimes duplicate existing Federal statutes, such as the Kansas law that criminalizes computer-generated images depicting children in sexual acts. While laws proclaiming to protect children are always good politics, criminalizing wholly computer-generated images could prove difficult. The courts will have to take a sexually explicit image created on a computer and determine whether the individuals in it resemble children. This comes perilously close to forcing the court to interpret and draw universal meanings from artwork.

Another example of ill-conceived state legislation is the bill recently passed in Georgia and currently in litigation with the ACLU. The law would make it a crime to use a pseudonym, or nickname, on the Internet and would outlaw even handles such as “BaseBallFan” that have no nefarious intent.

“Anonymity has long been protected by the First Amendment. Our Founding Fathers published dissenting

Prodigy Morphs to Web Service

Prodigy Inc. has moved all the content of its proprietary online service to the World Wide Web and relaunched as Prodigy Internet. One advantage Prodigy Internet holds over the commercial on-line service is that users can create a personalized, default home page linking to favorite Web pages. Internet Explorer 3.0 is the included browser, but the service is also accessible with Netscape Navigator 3.0.

Prodigy Internet software currently runs on Windows 95 machines only; support for Windows 3.1 and Macintosh is expected soon. There are two pricing plans: \$9.95 per month for 10 hours and \$2.50 each additional hour, or \$19.95 per month for unlimited use.

Prodigy Internet software can be downloaded at <http://www.prodigy.com>. For more information, call (800) 776-3449. —Susie Davis

political commentary under pen names to protect themselves,” points out Beeson.

You can follow the Internet-censorship follies on the ACLU’s State Censorship page at <http://www.aclu.org/issues/cyber/stbills.html>. And keep an eye out for censorship legislation introduced in your state.

—Shabbir J. Safdar



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Low-Tech Terrorism

Vandals once needed technical knowledge to crash systems by breaching security—for example, by using a sniffer program to obtain a password and login, exploiting holes in applications to gain root access, then deleting essential system files. But a couple of communications 'zines recently published the recipe for a formerly hush-hush type of vandalism: a "denial-of-service" attack that requires little skill.

Panix (<http://www.panix.com>), the oldest and largest Internet service provider in New York City, survived a brutal denial-of-service assault in September 1996. Instead of finding a way to gain unauthorized access to Panix, the vandal simply launched a fleet of bogus requests (known as a SYN attack) to Panix servers in such a way that legitimate users were shut out.

After going public with the attack, Panix president Alexis Rosen received well over 100 private messages

from ISPs who had been similarly attacked but remained silent. At the ISP level, Rosen says, "The solution is for all service providers to prevent their own customers from engaging in source-address spoofing." This would protect every system from all the others.

Rosen says ISPs could accomplish this by installing filters at the router level to check addresses against a database. Panix is one ISP that's now doing this, and Rosen expects some major providers to follow suit to help out smaller providers to whom they sell service. Others will need more persuasion.

Although filters at the router may quash some attempts, they won't prevent all SYN attacks, according to Robert Dinse, owner of Eskimo North (<http://www.eskimo.com>), Seattle's oldest ISP. Dinse says

that instead of forging non-existent addresses, the vandal could forge the addresses of actual users who weren't online at the time, with the same result.

"There is no way to completely defend against attacks that simply exhaust a resource that is also legitimately used and must be available, such as

the ability to open a TCP connection," says Dinse. "But there are things that can be done to harden hosts to this type of attack." Some solutions include creating more slots for connections, throwing away multiple packets of suspicious origin, and reducing the time-out value for connections in the embryonic state. —Rebecca Rohan



Netscape's New Mission

Like its nemesis Microsoft, Netscape Communications staged a media event to unveil its Internet market strategy and plans for upcoming product lines. The watchwords of Netscape's plan are "integration," "open standards," and (like Microsoft's renown "embrace and extend" tactics) "embracing and integrating" other Internet technologies.

The company's two-pronged plan for the upcoming year centers on Netscape Communicator—a client tool that incorporates the Navigator browser, e-mail, and workgroup functionalities—and SuiteSpot, a richly extended set of server tools.

New components of the \$49 client package include Composer, an HTML-based authoring module that doubles as an e-mail-writing tool; Collabra, a group-discussion package; and Conference, a real-time voice-and-data streaming module

that will eventually—but does not now—support video. A \$79 Professional version of Communicator will offer calendaring/scheduling, network installation, and other centralized functions.

Supporting the client packages are SuiteSpot servers that will be sold as a modular bundles. For a \$3,995 base price, buyers can choose any five of nine components, such as special servers for messaging, group discussion, streaming media, calendaring, and database connectivity. (Users should note, however, that some of the servers come with unlimited user licenses and some do not.)

A public beta of Communicator was scheduled for release before the end of 1996, with final release in the first quarter of 1997. The server modules also will become available in early 1997.

—Ted Stevenson

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Image Finder

While popular search engines allow you to locate documents using keywords, they typically do not search for images. Interpix Software Corp. has launched Image Surfer, a search engine that will help users pinpoint images on the Web.

On the Image Surfer Web site (<http://isurf.interpix.com>), you enter keywords and receive thumbnail versions of correlating pictures. (Interpix retrieves only images whose filename includes the specified keyword.)



You can then click on the mini image to access the Web site where the full image is located. —S.D.

FrontPage News

The original Microsoft FrontPage 1.1, a Web-page creation and authoring tool, fit neatly with the MS Office desktop and churned out good-looking pages with a minimum of effort. The chief enhancements to its successor, FrontPage 97, focus on building and managing Web sites.

The authoring portion, FrontPage Editor, provides a wealth of document-building resources—wizards, templates, and import functions—as well

as standard type-and-edit layout supported by a drag-and-drop interface and a preview feature that shows how your pages will look.

Among the elements you can insert with a click are video and sound clips, multimedia files for plug-in players, ActiveX controls, Java applets, and JavaScript and VBScript components. FrontPage will even help you construct scripts (although you'll still need to know the language you're using).

FrontPage also provides support for TrueType fonts, image-map creation, and a variety of ways to create hyperlinks. Bidirectional database connectivity is enabled by WebBots (pre-packaged CGI scripts) and aided by a Connectivity Wizard that facilitates interactions with ODBC databases.

The navigation and management side of Web-site building is handled by FrontPage Explorer—a tool bearing some resemblance to Windows 95 Explorer and Internet Explorer. It will depict link relationships diagrammat-

ically and identify broken ones. An automated To Do List helps assign site-maintenance tasks to workgroups.

A FrontPage 97 “bonus pack” contains Personal Web Server, Microsoft Image Composer (for sophisticated image editing), and the ubiquitous Internet Explorer. Pricing is \$149 for the complete package; upgrades from FrontPage 1.x are \$50, and owners of MS Office get a \$40 rebate. —T.S.

Watchful Eye Online

The Council of Better Business Bureaus, a nonprofit watchdog group, has announced it will soon be analyzing online businesses via its new subsidiary, BBBOnline. Internet-based businesses can apply to display the BBBOnline seal of approval on their Web pages, assuming they agree to certain conditions, including on-site visits of a business's headquarters and an arbitration system for dissatisfied customers.

Curious customers who click on the encrypted seal can peruse BBBOnline's report of that company. By 1998, BBBOnline hopes to include its entire database of reports of offline companies as well. Interested companies can request an application at <http://www.bbbonline.org>. —Eric Berlin



BBBONLINE

CyberCash Fields CyberCoin

CyberCash Inc. has introduced a micropayment technology called CyberCoin that the company hopes will accelerate Internet commerce. CyberCoin facilitates online purchases of goods and services priced from \$0.25 to \$10 and is intended primarily for digital products such as software, newspaper and magazine articles, games, and music.

With CyberCoin, consumers can securely transfer funds to and from an electronic “Internet wallet” with a bank account or credit card, using a password-protected software program. (The wallet can be downloaded for free from <http://www.cybercash.com>.)

Netscape is giving the payment system a boost by bundling CyberCoin with future versions of its LivePayment server software and incorporating it into Netscape Navigator. —Jim Ivers



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DIGIMARC CORP. has introduced PictureMarc, which embeds an imperceptible watermark on computer-generated artwork. Image creators embed the watermark using Adobe Photoshop or any of several Corel applications. Anyone who receives or downloads a copy can use a free plug-in to view the mark and go to a Web page with information on the image's author. Even printed photos will retain their watermark when scanned. PictureMarc also tracks watermarked Web pages. This doesn't necessarily stop users from lifting a copyrighted image, but it gives them incentive to ask permission for use. For more details, see <http://www.digimarc.com>.



TOTALLY HIP SOFTWARE's WebPainter makes it a breeze to create animations for Web pages. The \$99 program, available for Windows and Macintosh machines, contains a variety of painting tools for producing animated GIFs, QuickTime movies, Java animations, and Sizzler files. It will automatically generate an HTML tag for easy pasting. More information is available at <http://www.totallyhip.com>.

INFOACCESS INC. offers HTML Transit 2.0, a program that converts electronic documents from a variety of formats to HTML. Designed to convert large numbers of existing documents at once, version 2.0 supports HTML 3.2 tags and extensions, including frames. HTML Transit automatically renders tables and supports the insertion of Java applets and other interactive elements. It will automatically build tables of contents and indexes and display them adjacent to document text to facilitate navigation. It's priced at \$495; owners of HTML Transit 1.x can upgrade for \$99. A free trial version can be downloaded from <http://www.infoaccess.com>.



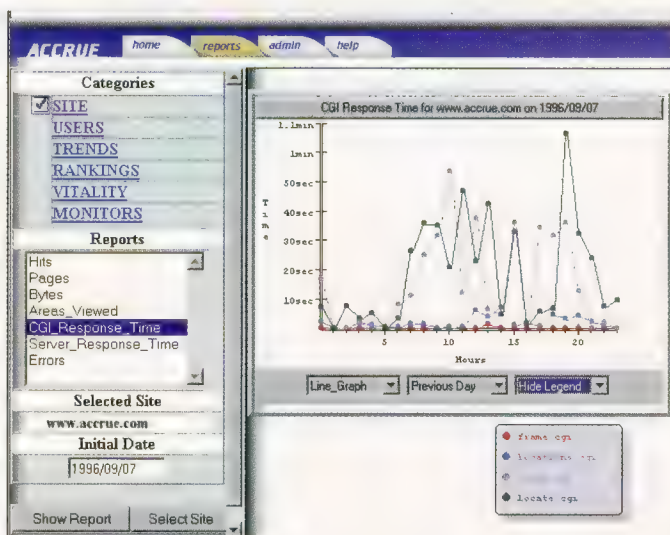
MICRORIM's latest offering, Submit This for Windows 3.1 and higher, gives nonprofessional Web-page builders a selection of ready-made HTML forms for collecting information from site visitors. Covering a variety of business and general info gathering purposes, the forms come in a selection of designs and can be customized. A CGI script and extensive database functionality (including reporting) are part of the \$89 package. Information is at <http://www.microrim.com>.

THE UNITED STATES POSTAL SERVICE (<http://www.usps.gov>) is developing a time-and-date postmarking service to enhance e-mail security. The digital postmark authenticates a document, ensuring

that the message has not been tampered with between the USPS and its final destination and providing an authenticated date. The document is archived and can be retrieved by the sender. The service costs 22 cents for a file up to 50K and more for larger files. Recipients can authenticate their documents with free USPS Mail Reader software available at <http://www.aegisstar.com>.



ACCURUE SOFTWARE has introduced a new tool for tracking and analyzing Web-site traffic. User-monitoring tools generally report which pages have been requested, but Accrue Insight systems also tell site administrators how much of a page was actually delivered, giving a better understanding of server-response time and



visitor interest. The real-time, graphical analysis of visitors allows administrators to drill down into ever-more-detailed data to track links, speed, individual users, and other navigation information. The technology is intended for large public sites; server prices start at \$15,000. For more information, visit <http://www.acrue.com>.

NET-IT SOFTWARE CORP. (<http://www.net-it.com>) has introduced Net-It Now, an application that lets Windows 95 users instantly transform most desktop documents into viewable Web pages. Formats supported include Microsoft Word, Adobe Illustrator, and Excel spreadsheet documents (major exceptions are QuarkXPress and PageMaker). It will then let users tweak the pages by embedding links, sounds, small animations, and visual tricks like fades. A single-user license is \$149.

—Susie Davis, Amy Dunlop,
Jim Ivers, Ted Stevenson



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the Surfboard

BY ERIC BERLIN AND ANDREW KANTOR

Don't put off for tomorrow what you can surf today.

Suspicious Minds

The underground has gotten organized at DisInformation (<http://www.disinfo.com>), a one-stop supermarket of conspiracy theories, unexplained phenomena, and other things that They don't want you to know. Certain proof of the site's success is simply this: We can't tell if these guys are serious or not.

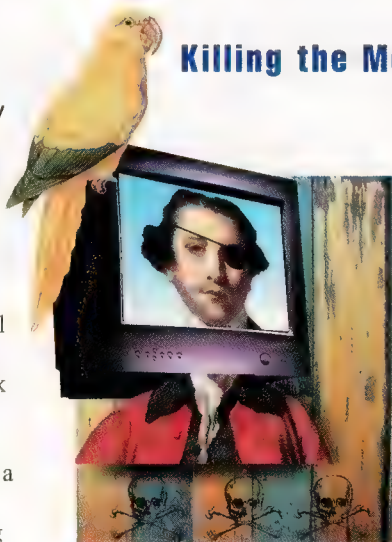
Maybe they really do think that crop circles are caused by aliens instead of a bunch of bored Britons. And they've got a whole section devoted to the Illuminati. They rate sites using a scale of one to four hand grenades, which, all things considered, seems more funny than paranoid.

Things That Go Bump on the Net

Remember the weird things people connected to the Internet? A soda machine and a hot tub? Well, now, according to Yahoo, there are approximately 500 odd devices attached to the Net—from a wine cellar to, naturally, a table lamp ("See if it's on!").

Our choice for oddest device (a mighty tough choice indeed) is the odometer of some guy's 1986 Chevy Cavalier at <http://puck.nether.net/crasher3>—you can check out the mileage, among other things, and the page's creator is promising more in the future. We're hoping one day you'll be able to drive it via the Web.

Killing the Messenger



First it was the nation's lawmakers who wanted to make Internet service providers (ISPs) liable for any pornography on their servers. The ISPs dodged that bullet, but now are faced with a whole other problem: The Software Publisher's Association (SPA) has begun to take action against pirated software on the Net by going after the ISPs whose customers post or link to it.

One lawsuit was already filed against Community ConneXion (<http://www.c2.org>), a California-based provider, but was soon "dropped without prejudice," according to Peter Beruk, a lawyer for the SPA. "We dropped it because in our best judgment, they felt very upset and wrongfully accused, so we wanted to get it out from over their heads and start a dialogue."

But a suit dropped without prejudice can be brought back on a moment's notice, so Community ConneXion hasn't yet breathed that sigh of relief.

At issue is a Code of Conduct that the SPA wants signed. ISPs who accept the Code would agree to set up procedures to root out illegal software on their customers' Web pages. But the Code also requires ISPs to protect against their customers linking to pages with pirated software. Beruk said that some ISPs had already signed the Code—but our repeated requests for a list of those ISPs went unanswered.

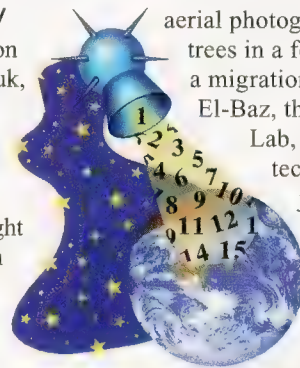
Sameer Parekh, head of Community ConneXion, refuses to sign the Code. He says it will force him to search all of his users' pages, whether they are held in suspicion or not. Parekh also said the Code would make him "more liable" for pirated software on his server. Beruk, for his part, says the SPA's Code of Conduct is voluntary and that he doesn't care if Parekh signs it—he just wants to be sure Community ConneXion will guard against pirated software in the future. (Beruk was unclear about how Community ConneXion could prove their vigilance, short of signing the Code.) Parekh, with the lawsuit still hanging over his head, doesn't feel he would be signing a voluntary code voluntarily. He just feels shanghaied.

Down for the Count

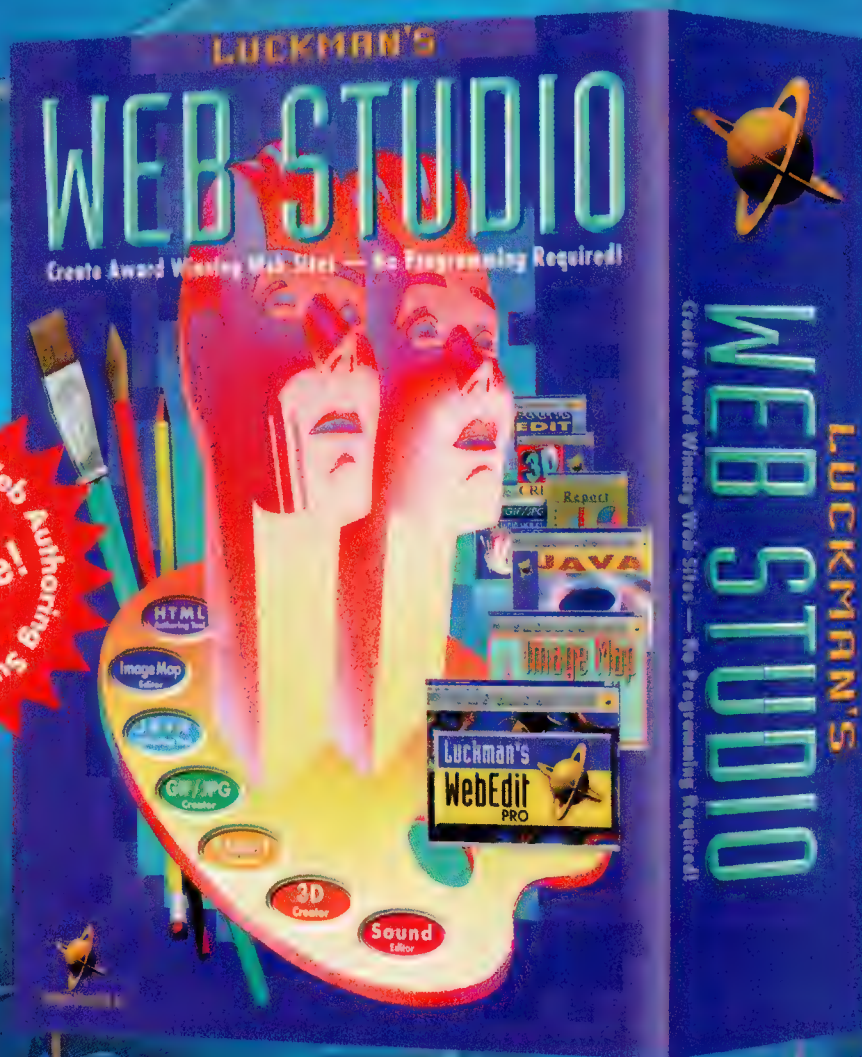
When the National Park Service announced that only 400,000 people showed up for the Million Man March, Louis Farrakhan and the Nation of Islam hit the roof with charges of racism and incompetence. The Nation's own count put well more than a million men at the scene. The conflict seemed impossible to resolve, for who could prove either side right or wrong? Enter the Remote Sensing Lab at Boston University.

The Lab usually uses aerial photographs to count trees in a forest or birds in a migration, but Dr. Farouk El-Baz, the head of the Lab, realized the technology could just as easily be used to count men in a march. The whole fascinating story is at http://observe.ivv.nasa.gov/observe/exhibit/rem_sen/march/march_1.html, but we'll boil it down for you: They counted 878,587 men, with a margin of error of 25 percent—for a possible total of 659,000 to 1.1 million men.

It doesn't say, at the Web site, if the Nation of Islam said "Nyahh nyahh nyahh" to the National Park Service. We would have.



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CIRCLE NUMBER 129

Accentuating the Positive

Tired of the TV news, with ongoing stories about murder, rape, war, crime, starvation, disaster, death, destruction . . . you get the idea? So were the people who created the Positive Press (<http://www.positivepress.com>), a site of—you guessed it—only good news.

The editors there don't actually write the stuff; they cull through other newspapers and Web sites, ignore the bad and summarize the good, and



create a link to the full story. There's material from the *Arizona Star*, the *Philadelphia Inquirer*, Reuters, and more, updated daily.

Sad to say, the PP people still have time for their day jobs. In the General News section, when we checked, there were a whopping four stories, and the entire site—if you don't count the Light News section (which has features, not actual news)—has barely a dozen stories. (And some of that is iffy, like the story about Los Angeles' smog, with the cheery note: "The area had only seven Stage One alerts, which indicate severe bouts of pollution. Last year, twice that number was reported.")

Still, for a cheery spin on our otherwise drab, wretched world, stop by.

Gry, Again and Again and Again

Back in November, we ran a little piece about an annoying puzzle cropping up over and over ("There are three words that end in -gry. Angry and Hungry are two of them. What's the third?"). Since then, we've been hit by mail from several readers, each admonishing us for not knowing the "real" answer. *But each letter had a completely different solution.*

One told us we were idiots for not knowing that the third word was "aggry" (a colored, glass bead). Another said, "The three words in question, which I have known about for approximately 20 years, are angry, hungry, and mogry." (But he didn't know what mogry meant. And neither does Webster's.) And another explained that the answer was less definitive: The third word is "three"—literally the third word in the riddle.

All this just illustrates the point we were trying to make in the first place. It's an annoying riddle, and trying to find the answer simply leads to discord and strife.

Big Babies

Seeing schools install censorware products like Cyber Patrol to screen out pornography isn't surprising in this day and age. But it did raise our eyebrows when the school in question wasn't P.S. 163, but the University of Arkansas.

"We're trying to provide a safe and harassment-free environment," said Allen Moore, system administrator at the university, where—in a place where "P.C." doesn't mean "personal computer"—simply viewing the *Playboy* home page might be considered harassment. Some of the students, however, didn't care to be protected. One senior, who wished to remain nameless, stated the obvious: "We're grown-ups and should be responsible for ourselves. We're old enough to

vote. The university should not be policing us."

When asked about the items Cyber Patrol blocks that might not be considered offensive to the students or its administration (see "Who Will Watch the Watchmen," Nov. Surfboard), Linda Yeiser, an administrator at the university, said only one or two complaints had been received. Nonetheless, the software was only on for a month before being taken

back down—but don't interpret that as capitulation to the more rebellious

students. University reps said they were simply "evaluating" the software for now. So roam the Net freely while you can, kids; there's a chance Cyber Patrol may be coming back.



Scam of the Month

It's getting so you can't tell a report of a legitimate scam from just another rumor.

The latest scam report, for those of you who've missed it, is about "809 phone calls."

Haven't heard it yet? It's supposed to work like this: People reportedly get a "Final Notice" of an unpaid bill, asking them to call "Customer Service" at 809-whatever. But the mark doesn't know that the 809 area code isn't in the United States—it's in the Caribbean.

And supposedly (the scam reports say)

it's the equivalent of a 900-number in the United States.

And in the Caribbean, the rules for disclosing the rate for the call (\$2.95 per minute or what have you) don't exist. So people who call these numbers end up getting billed for thousands of dollars. Or so the story goes.

We've seen a lot of warning messages about the scam, but—surprisingly—haven't seen the scam itself. And calling the number mentioned in the warning letter simply gets you an irate Caribbean citizen; 809 is just a normal area code.

So thanks to goodwilled people spreading the warning without checking the facts (à la the Lexis-Nexis P-Trak story), we have ourselves an urban legend in the making. ■

Eric Berlin is a freelance writer in New York. Andrew Kantor is a senior editor at Internet World. They can be reached at surf@iw.com and neither knows a thing about the Illuminati. No sir.

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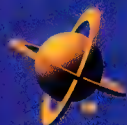
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CIRCLE NUMBER 15

FIGHT FOR PRIVACY

Information about people is routinely gathered and disseminated on the Net. How much is fair game and what can you do to protect yourself?



see it in movies and television shows and it still amazes me. An investigator, trying to track down a suspect, goes to the librarian and asks to see the suspect's records. The librarian complies and the investigator learns some important clue based on what books and materials the suspect checked out. Of course the action is necessary to move the story along, but in the real world, a librarian wouldn't blithely hand over such records, no matter how charming the investigator. It would be a violation of the patron's privacy, much like a doctor allowing a stranger to read a patient's medical chart. (There are, however, legal channels to subpoena library records for court cases.)

Librarians are acutely aware of the need to protect privacy and also how easily that privacy can be breached. Birth, death, marriage, divorce, and court records are available at your local town hall or court. But with the advent of computer databases, personal

information is easier to get than ever before. Social security numbers, insurance records, and criminal histories are all available to those who have research skills and the money to pay for database access. One of these databases is P-Trak from Lexis-Nexis. P-Trak offers basic information you need to find someone: current and previous addresses, phone numbers, and birthdays. (Rumor originally had it that P-Trak offered more personal information, but that turned out not to be the case—see <http://www.lexis-nexis.com/lnc/p-trak/p-trak.html>.) That type of basic information is available in dozens of other commercial databases, many of which contain more specific details, such as insurance-policy numbers and driver's license records.

For a fee, Internet users can look up somebody's driving or other public record. While this material is available elsewhere, the Internet gives people easier access to the records.

While courthouses typically keep a record of everyone who requests documents, curious Net surfers often think they can maintain anonymity merely by lurking. But the Internet won't hide your identity from the computers to which you travel. When you visit a site, the host computer can record your domain name, type of software you're running, and place of origin. This isn't necessarily as ominous as it sounds. To some extent, the information your computer shares with other computers is necessary.

For example, the computers need to know which browser you're running when you view a Web page. Much of what is recorded is never seen by a human and is efficiently erased when the computer needs more disk space.

Beyond that, marketers can compile lists of who visits which sites, then cross reference them to create profiles of potential customers. Someone using Unix's finger utility might find out if you've read your e-mail and when you were online last.

Although you can have an unlisted telephone number, as soon as you do a simple thing like fill out a raffle ticket at the local elementary school your name is up for grabs.

WATCHDOGS

To help you understand the threats to your online privacy—and to enlist your help in fighting them—a growing number of organizations have launched Web sites to illuminate privacy problems, cases, and issues.

One place to begin learning about your privacy rights is the Electronic Privacy Information Center (EPIC) at <http://www.epic.org>. It has news updates on issues such as cryptography, wiretapping, Internet censorship, and privacy violations by marketing

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firms. You can learn about First Amendment rights and how to use the Freedom of Information Act.

The Electronic Frontier Foundation, at <http://www.eff.org>, is among the better-known organizations whose goal is protecting privacy rights and free expression. On its site you can read the latest news about encryption, free speech, and intellectual property. It also provides detailed information on cases in which EFF is involved and campaigns you can join.

For example, did you know there is a Georgia law that prohibits pseudonyms on the Internet? Also among the EFF's initiatives is the Golden Key campaign that advocates the freedom to encrypt.

Privacy in the Information Age at <http://www.princeton.edu/~kdmukai/begin.html> offers a discussion on privacy issues, including answers to many oft-debated issues. For example, if a potential employer wants to perform a background check, can a job seeker refuse to authorize one? Unfortunately, job seekers are in an awkward position, since refusing to authorize a background check may jeopardize the chances of getting the job. Once the employer has the data, there is little that can be done. Employers are not required to warn applicants that a background check is being done, so job seekers may not have the opportunity to respond to negative or misleading data.

The Privacy Pages at <http://www.2020tech.com/maildrop/privacy.html> include links to encryption software such as PGPfone, online hacker magazines, and related Usenet newsgroups. To aid you, there's a short description of each site.

Internet Privacy Law (<http://www.mother.com/~ono/tjw.htm>) is a site devoted to exploring and clarifying the legalities surrounding Internet privacy, including such topics as search and seizure, unsolicited e-mail, and defamation. Should the Fourth Amendment protect Internet users from having their e-mail "seized" off the server? If an Internet service provider gives permission, is that enough to justify a search? The site offers an overview of these and other issues, with links to related topics.

For a thorough and fascinating look at privacy laws, visit the Privacy Rights

Clearinghouse at <http://www.acusd.edu/~prc>. This California-based service offers a hotline for California consumers to report abuses of privacy; you can read some of the cases on the site. A Fact Sheet link gives you practical tips (in English and Spanish) for dealing with privacy issues.

Tired of telemarketers calling at dinner time? Worried about who is reading your credit report? Want to know how safe your social security number is? The PRC site addresses these issues and answers many of the questions they pose. It also offers addresses to which you can write to reduce the amount of junk mail and

telephone solicitations you receive.

The format is easy to read, even when dealing with legalese. If you have a privacy concern in any area of your life, the PRC can probably help you find information.

For a more global outlook on Internet rights and electronic privacy, visit Privacy International at <http://www.privacy.org/pi>. Members from more than 40 countries watch government and corporate developments that affect privacy rights, especially when technology is involved. At the site, you can read Privacy International's analysis of the U.S. State Department's report detailing the rights of citizens in various countries.

Internet-rights issues in the United Kingdom are championed by The U.K. CommUnity at <http://www.community.org.uk>, whose stated mission is "to keep U.K. cyberspace free."

The site monitors news accounts and attempts to expose errors in reporting Internet stories (such as inaccuracies in a newspaper's account of why the anon. penet.fi remailer was shut down). It also describes local police efforts to prod Internet service providers to "take necessary action" against newsgroups that contain pornographic material.

ELECTRONIC RIGHTS

Computer Professionals for Social Responsibility (<http://www.cpsr.org>) and the Internet Privacy Coalition (<http://www.privacy.org/ipc>) are organizations concerned with protecting electronic rights. Both sites offer a dose of skepticism

about government activities and bring up interesting points to consider.

You can find information about relevant legislation (such as the U.S. government's Clipper Chip initiative to allow tapping of online communications). The site offers a discussion of the G7/P8 Ministerial Conference on terrorism in Paris last July that favored the idea of the Clipper Chip. There is also a discussion of the U.S. State Department's export controls on encryption programs (they are still considered "munitions").

A site called Anonymity and Privacy on the Internet (<http://www.stack.unc.tue.nl/~galactus/remailers>) gives tips on privacy and security. Maintained by Arnoud Engelfriet in Holland, it lists and describes remailers for those who wish to send e-mail anonymously. (For example, a support-group member discussing a personal problem might not want to be identified.)

Also listed are privacy and security programs that can help you surf anonymously. From encrypting e-mail to wiping files, you can learn ways to conceal your identity and keep others from following your activities.

At the Center for Democracy and Technology, at <http://www.cdt.org>, you can click a button that launches a CGI script that yields a report telling you what Web page you came from, what kind of computer you are using, and other information the server knows about you. Again, some of this information swapping between computers is necessary and harmless.

However, if you are concerned about being tracked, the site offers a link to The Anonymizer (<http://www.anonymizer.com>), which keeps the servers you visit from knowing who you are and where you've been. It takes longer to get from one place to another using The Anonymizer, but if privacy is a concern for you, it may be worth it.

Another arena for discussions about privacy is Usenet News. The best place to start is the **alt.privacy** newsgroup, where a wide range of topics is entertained. Other newsgroups devoted to privacy issues include **comp.society.privacy**, **comp.org.eff.news**, **alt.privacy.clipper**, and **misc.legal.computing**.

As these activist groups and resources show, you need not feel helpless despair at the loss of your privacy, nor take it lying down. ■

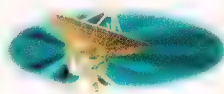
Cynthia N. James-Catalano (jamcat@iag.net) holds a master of science in library science and works as an editorial researcher in Orlando, Fla.

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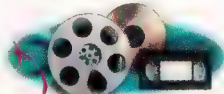
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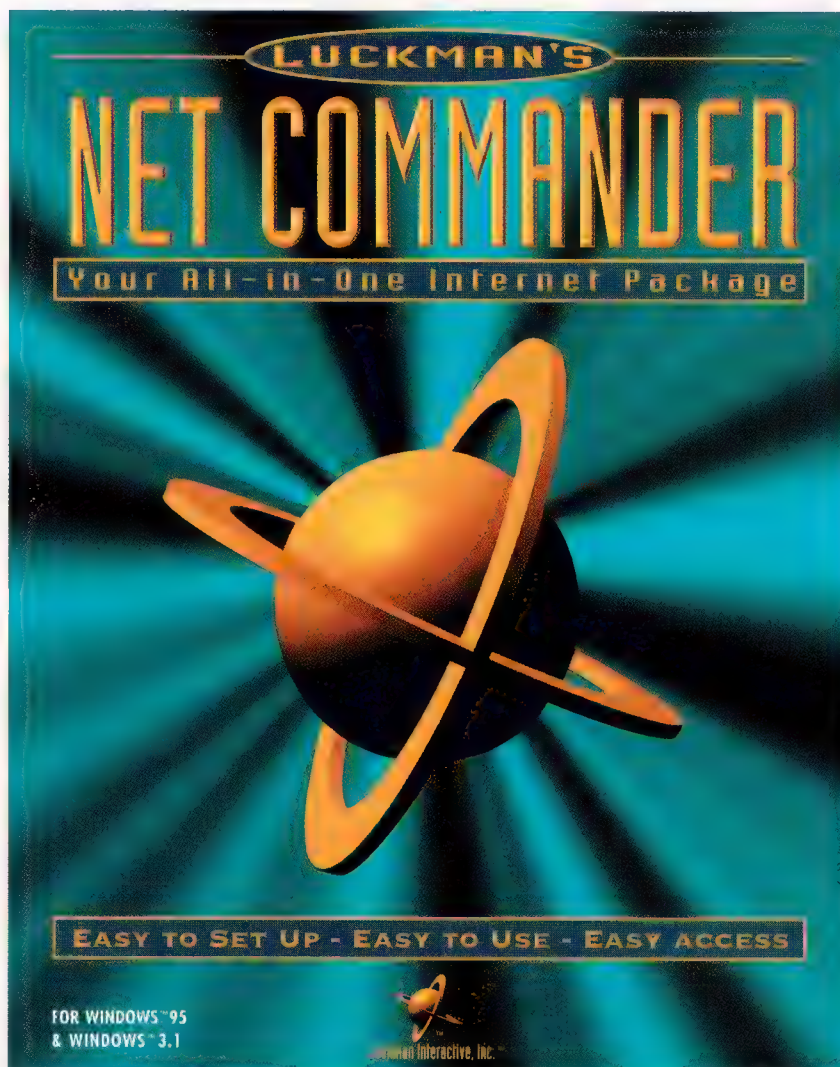
References



Utilities

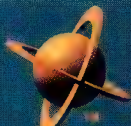


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CIRCLE NUMBER 131

A TIGHT SHIP

Don't launch a sloppy Web site. Make your visitors happy by structuring your online content through careful planning.

With more than 30 million Web pages to visit (estimated by Digital Equipment Corp.'s AltaVista) and millions more behind corporate firewalls, casual users are easily left dazed and confused by the overabundance of Internet resources. And this already overwhelming infoglut will only become larger. The best way to fight infoglut is to build organizational structures that make it easier to find and present information.

At the macro level, hierarchical, subject-oriented Web indexes like the "big five" (Excite, Infoseek, Lycos, Magellan, and Yahoo) have made great strides in classifying the various species of Web sites (see "Critic's Choice," p. 80). At the micro level, SGML (Standard Generalized Markup Language) has been generalizing the informational structure of documents for nearly a decade. However, at the Web site level, there are no standard methods for organizing and presenting documents and services—and there probably never will be.

The question all Web site developers should ask themselves each time they put their skills to use is whether or not they are adding to or combating users' confusion. Developers can ensure that their sites are accessible, navigable, and memorable only by assembling strong, scalable information architectures on which to hang their content. On the other hand, sometimes the pressure to publish makes it hard to find time to create robust organizational systems, resulting in rickety structures that will need to be overhauled.

INFO ARCHITECTURE

What does the process of creating an information architecture involve? For the most part, common sense. Organizing a Web site is much like organizing the files on your desk.

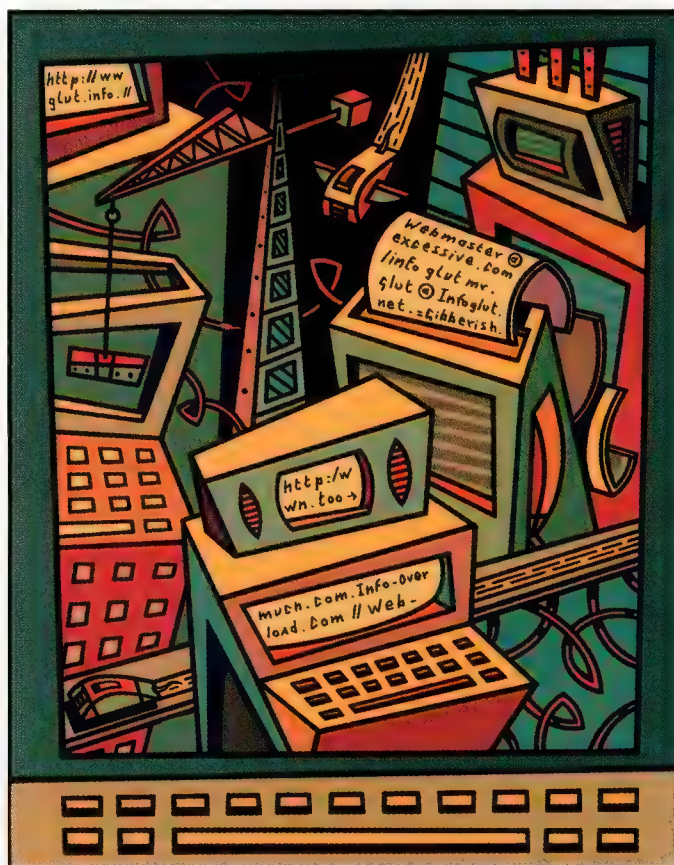
The unique challenges of organizing a Web site become apparent, however, when you

consider that the framework you build must be in place long enough for regular visitors to know and rely on it. Only with internal consistency will repeat visitors form a mental model of the site and be able to guess where documents lie without searching. Because the system must remain in place over time, it is important to spend time not only organizing the existing elements, but also ensuring the flexibility to change the site down the road.

As you work, keep careful notes and refer to them frequently. While it may be blatantly obvious today why you decided that the article about chinchillas should fall into the "pets" section of your Web site, by next year you may not remember this. Furthermore, many times the staff that designs and builds a Web site will be different from the staff dedicated to maintaining and adding to it. In this case, documentation is critical.

The first order of business in framing an information architecture is to create a list of all the documents and services you plan to offer on your Web site. At this stage, try not to think about how any of these pieces fit together or whether any of the ideas will ever see the light of day. Simply brainstorm possible scenarios.

Take, for example, a site dedicated to children's cartoons. You, the designer, have a rich database of cartoon trivia and a trove of scanned animation cells and QuickTime clips. The initial idea is to design a colorful front end for these resources and to give children a place to talk about their favorite cartoons in real-time chat and threaded discussion groups. Imagine possible scenarios that could affect the site. You could sell advertising, which would mean adding a section for sponsor information as well as an area dedicated to rate information. Perhaps your focus will grow to include cartoons intended for adults. How will the site accommodate the addition of material? Currently your site





9 04

DATE

NAME

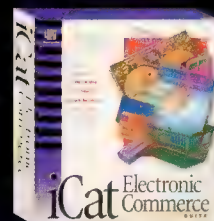
ICAT ELECTRONIC COMMERCE SUITE

ADDRESS

SOLD BY		CASH	CHARGE	C.O.D.	MDSE. RETD.	PAID OUT	ON ACCT.
QUANT	DESCRIPTION				PRICE	AMOUNT	
1							
2	SOFTWARE						
3	THAT						
4	TAKES						
5	ORDERS,						
6	NOT						
7	GIVES THEM.						
8							
9							
10							
11							
12							
CUSTOMER'S #					RECEIVED BY		

>>> iCat electronic commerce software was built on two simple insights: *You know your business* and *You'd like to make as much money as possible*. These minor mental leaps led us to create software flexible enough to answer your business needs and powerful enough to maximize sales. Software that provides a choice of 250 Internet storefront templates. That includes built-in merchandising intelligence to encourage the always popular cross-selling and up-selling. That supports Windows NT, Windows 95, Macintosh and all leading UNIX platforms. That allows you to create your own site or tap into iCat's large existing network of web commerce developers and Internet service providers. And of course, that supports four different, secure payment processing options for inviting the money to roll in.

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targets children from your own nation, but will your audience ever be global? If so, you need to plan for whole sets of documents in other languages.

Try putting the documents and services into categories using an organizational chart to depict the hierarchical framework. At the top of the chart is the top-level page—your home page. Below the home page add boxes corresponding to the major divisions of your content, trying to make as few major categories as possible. While there is no hard and fast rule about how many sections are ideal, try to keep the number to less than a dozen or so, realizing that you want your users to be able to remember the divisions easily when they look for specific documents or services.

Depending on how large your site is, you may be able to hang all of your documents off of this first-level hierarchy, or you may need to create additional levels to accommodate further divisions within each category. By the time you finish, you want to be able to slot all the documents and services—present and future—into the hierarchy.

Many designers of large-scale Web sites create elaborate charts for their sites, with elements of different sizes and shapes standing for different types of pages. As of today there is no standard way to depict the various elements. However, many org-chart packages (such as Broderbund's Org Plus) and site-management software packages (like Microsoft's FrontPage) can help make this part of the site-design process easier.

For the most part, you shouldn't worry about how your organizational scheme will be reflected in your final Web site design. The way documents are organized logically on paper is not necessarily the way visitors will navigate them. Important documents may lie at the very bottom of the org chart, yet be highlighted by a link at the top of the Web site.

However, it is important to decide whether documents should appear in more than one place on your organizational chart. For instance, should a document about tassel loafers be slotted under "businesswear," "shoes," or both? If the answer is both, then you need to account for that in the design of your site.

If you decide that each section of your Web site should have a distinct look, and one document is slotted into two different sections, then you are faced with the problem of making the document look different depending on which section it was accessed from. You can accomplish this in any of several ways, such as server-side includes or a frames-based interface. However, you may be tempted to simply copy the document to two different places on your Web site and slap different headers or footers on each copy. This can lead to nightmares down the road unless you are careful to keep both copies of the documents in synch.

Now you're ready to move into production mode. Save a copy of the chart to act as a road map, then pare off all the elements that don't already exist. Although it is good to plan for the future, there is nothing more frustrating for visitors than finding phantom limbs on a Web site acting as placeholders for future content.

Finally, spend some time writing a set of short informative labels that will delineate the major organizational categories in your site—usually the boxes in your org chart directly under the home page. These labels often will be able to serve as the main-menu items of the site. Crafting the labels can take longer than any other part of the process, but the effort is worthwhile. When you've completed the org chart, you will have created a

coherent site structure that should be flexible enough to last at least for the next three to six months.

EASY NAVIGATION

After building your information architecture, you need to figure out how users will navigate it. If you don't give proper attention to this aspect, your site could end up like a beautiful house with insufficient doors, windows, or staircases.

There are three basic methods for steering users from the top level of a site to a target document: browsing, where the user proceeds link by link to the target; searching, where the user enters keywords and is presented with a list of options; and index scanning, where the user is given an overview of the entire site structure and can quickly zero in on the desired resource.

NetCarta (<http://www.netcarta.com>) offers a unique method for presenting your site to users in the form of a WebMap, a searchable, collapsible tree that can be browsed offline. Another way to ensure that site visitors can get to specific documents quickly is to give them the ability to create personal pages on the site displaying favorite information resources and hotlinks. Both Microsoft (<http://www.msn.com>) and Yahoo offer this service, which makes it easier for users to take full advantage of these mammoth sites. Before you begin building your site, put together storyboards that depict the viewer's experience using each navigational route. Make sure each method gets the user to the target resource in as few clicks as possible.

THE BIG PICTURE

Once you have created a logical organization for your Web site, you need to take into account that every Web site is part of the larger chaos that is the World Wide Web. There are simple methods you can use to make your site easier to find on the Internet. The easiest is to submit your site's URL to various search engines and subject listings. You can do this yourself or have an agency handle it for you. Yahoo has an excellent list of such agencies at http://www.yahoo.com/Business_and_Economy/Companies/Internet_Services/Web_Presence_Providers/Announcement_Services.

Another way to throw your site into the Internet fray is to add Meta tags to top-level pages. Meta tags offer information that will be extracted by the spiders that search engines send out to index sites. (Choosing "Help" at AltaVista—<http://www.altavista.com>—will provide an overview of using the Meta tag.)

Besides creating more organized Web sites, how can we fight info glut? What about taking time to regularly clean house? It would be helpful if more Web developers took responsibility for retiring out-of-date Web sites and documents. Perhaps a single day of each year could be set aside for Webmasters to stop working on new content and start deleting the old. This would go a long way towards propping up the Internet's sagging information architecture. ■

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PARTNERING PITFALLS

While online city guides are offering local print publications enticing deals, publishers should look closely before they leap.

A healthy \$60 billion local print-advertising market in the United States is spawning a number of online city guides that offer local content and compete fiercely for ad revenues. These Web-based city guides include At Hand, BigBook, CityScape, CitySearch, and Yahoo, as well as Internet news services like the PointCast Network. The guides are offering eye-catching deals to local newspapers that range from licensing fees to ad-revenue splits to joint promotions. But do print publications really benefit from these deals? That's something content providers must determine before they risk ending up as nothing more than private-label wholesalers of news and information.

The key to success in Web publishing—and any other form of publishing for that matter—is to own your customer bases and to build your brand names.

"Newspapers have to decide what their goals are," says Susan Bokern, associate director of Gannett New Media, whose company has formed an alliance with the PointCast Network. "It's not about regurgitating your content; it's about extending your brand name in a new medium. Partners are great, but you need to be careful that you're not building someone else's brand."

THE LURE OF LINKS

Many local publishers are taking the bait. Linda Nelson, vice president of new media at Stern Publishing Inc., the New York publishing company that owns *The Village Voice*, *LA Weekly*, and *OC Weekly*, says all three Stern publications are providing content to America Online's Digital Cities and Yahoo's regional directories in California and New York.

"Shying away from alliances is an old print-business model," Nelson says. "These alliances can be beneficial if you choose your partners carefully." It's also important, Nelson says, not to give away the store. For example, only the basic events listings in *The Village Voice* are available on Yahoo New York. To see the rest, readers must click to the *Voice*'s Web site. What's more, Nelson refused to let Yahoo have the *Voice*'s personal and real estate classifieds, both of which are major draws for the site.

"I feel that what's up there is very limited information, and it's good for our brand and our visibility because a lot of people go in there," Nelson says. "If, at the end of the year, my Web site is doing great, then maybe I won't need Yahoo any more."

Consider the following when evaluating a content deal:

Does it meet your needs? Ask yourself if you really need to partner with the online city guides coming to your area or if you can afford to go it alone. Large newspaper sites like Philadelphia Online

(<http://www.phillynews.com>) have shied away from content-partnering deals, while smaller papers like the *Voice* are embracing them.

"We just don't have the capital that the big papers do," says Nelson of the *Voice*. "I have a very small staff, so any amount of exposure I can get is real good." Nelson says her online paper is experiencing "exponential growth" partly due to its deal with Yahoo. The paper's online edition averages 350,000 to 500,000 hits a week and draws 80,000 visitors.

Evaluate the short- and long-term benefits. Site traffic is what determines how much you can charge for advertising. Most of the ad dollars on the Web are going to search engines and directories like Infoseek, Lycos, and Yahoo. The most heavily trafficked site is Netscape, which many Internet users keep as their default home page. As a result, many publishers are happy to trade links with just about anyone in the hopes of generating more traffic.

And that's exactly what these online city guides are offering—link exchanges, joint promotion, ad-revenue sharing, and other sorts of cooperative partnerships. But publishers must be careful about entering into ventures whose primary purpose is to build the service's brand at the expense of the paper's own.

To help smaller newspapers compete against the online city guides, a startup company called Koz (<http://www.koz.com>) gets community organizations to contribute information to the paper's Web site, taking the burden off the paper's editorial staff. "Private-label deals are

best, then co-branding," Gannett's Bokern says, adding that you can negotiate the terms of the deal.

Evaluate the cost. There are no free lunches, even on the Internet. While online partnerships may appear to be no-cost propositions, there's often a tangible expense. What if you want to promote the city guide in your newspaper's print edition? Giving away space—space that would otherwise be sold to paying advertisers or devoted to promoting the paper's own Web site—is never free.

Evaluate the future. With all the competing city guides springing up, there's bound to be a shakeout—probably soon. Earlier this year, AT&T pulled the plug on a Sacramento, Calif., Web site called Home Town Network that delivered news, classified ads, and information on entertainment and local government. AT&T was planning a national network of such local sites but decided the service would be too expensive to roll out.

Until the dust settles, publishers would be wise to keep the time-frame for their deals short, and their options open. "I don't

**NEW YORK'S THE
VILLAGE VOICE
SEES EXPONENTIAL
GROWTH PARTLY
DUE TO ITS DEAL
WITH YAHOO.**

sign any deals that are longer than a year," Nelson says. "I have no idea what the market will look like then."

CITY GUIDE SCENARIO

Here are the deals that some of the city guides are offering today. *At Hand* (<http://www.athand.com>). The newest player in the regional-content game is Pacific Telesis's At Hand service, which launched its guide to California on August 30, 1996. At Hand's focus is home, entertainment, and sports information, not local news. The guide includes 1.2 million merchant listings in the three categories plus articles on related topics from 43 magazines and newspapers and ads from 65 sponsors.

At Hand is partnering with local content providers to create a service that provides a "one-stop problem solver for shoppers," says Jeff Rios, manager of interactive services for The Good Guys, a regional electronics retailer that is one of At Hand's charter advertisers.

For now, At Hand is positioning itself as a distributor of information, rather than as a publisher. Editorial content for the site is provided by 14 well-known publishers, including American Express Publishing's *Travel & Leisure Guide*, BPI Communications' *Billboard Magazine*, and *The Hollywood Reporter*. Time Inc. contributes *Picks & Pans* and *Celebrity News* content from *People* magazine, and Zagat Surveys serves up reviews of restaurants based in the Los Angeles, San Francisco, and San Diego areas, plus hotel information. Tribune Media Services shares movie critic Gene Siskel's *Flicks Picks* with At Hand.

CityScape. Building on the success of its MSNBC launch, Microsoft expects to roll out the first of its on-line city entertainment guides in the first quarter of this year in Seattle. By midyear, the company expects to have the advertiser-supported guides in New York, Boston, and San Francisco. Preliminary plans call for movie listings and restaurant reviews. Microsoft is hiring its own news staff to create original content, but may team up with local publishers in some cases, according to published reports.

Newspaper publishers breathed a sigh of relief last year when Microsoft executives announced they would hold off on seeking classified ads for the new venture, focusing on entertainment-related ads and information instead. But publishers would be wise to keep a close eye on the boys from Redmond. CityScape has hired Stamford, Conn.-based CUC International and its 1,200-strong national sales force to sell ads in its guides.

CitySearch (<http://www.citysearch.com>). Backed by AT&T Ventures, Goldman Sachs, Steven Spielberg, Compaq founder Ben Rosen, and CyberCash founder Bill Melton, CitySearch is going more aggressively after the local news market. However, like Microsoft, CitySearch pledges that it will not seek classified advertising in local markets, preferring to cooperate with local publishers.

Much of CitySearch's focus is small business, local government, and non-profit groups. The La Crescenta, Calif., startup already employs 240 people and generates revenue by putting up Web sites for local advertisers and selling ad space. CitySearch has sites up and running in Raleigh, N.C., Pasadena, Calif., and San Francisco. It moved into New York last spring by acquiring the Metrobeat (<http://www.metrobeat.com>) events-listing site. Sites in Austin, Texas, and Salt Lake City are on the way.

CitySearch's cooperative model is best seen in Raleigh/Durham, N.C., where the company is working closely with *The Independent*, Raleigh's major newspaper, and one of Raleigh's



local television networks, Channel 11 WTVD. Content providers share in the ad revenue that CitySearch sells on the site.

Yahoo (<http://www.yahoo.com>). The de facto Yellow Pages of the Internet, Yahoo has rolled out its first three community sites in San Francisco, Los Angeles, and New York. Other sites are going up in Chicago and Washington, D.C.

Unlike CitySearch, Yahoo is not in the business of setting up Web sites for local advertisers, preferring to build co-branded intermediate pages that link readers to a publisher's site. Publishers get a share of the banner-ad revenue generated based on traffic and their willingness to offer their content to Yahoo on an exclusive basis. Ellen Siminoff, director of Yahoo Communities, says that deals with publishers are based on individual wants and needs.

Current publishing partners include KPIX, a San Francisco CBS affiliate; the *San Francisco Bay Guardian*; KNX, a Los Angeles-based TV station; KIIS FM, a Los Angeles radio station; *The Orange County Weekly*; *The Orange County Register*; *LA Weekly*; *The Village Voice*, and *The Daily News*.

No matter who wins the war of the online city guides, the ultimate victory for local publishers is maintaining and building their brands in cyberspace. Do deals that make sense, avoid those that don't, and don't lock yourself into anything for longer than a year. Online, as in print, strong relationships with readers and advertisers are the key to long-term profits. ■

Rosalind Resnick (rosalind@netcreations.com) is president of NetCreations, Inc., an Internet software and marketing company. She also publishes *Interactive Publishing Alert*, a newsletter tracking trends in online publishing.

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CIRCLE NUMBER 127



THE Best AND Worst OF 1996



Welcome to our third annual Best and Worst of the Net extravaganza. Once again, we invited *Internet World's* regular contributors to tell us what they thought was the best and worst of the Internet in 1996. The format was left open to their interpretation. They could comment on sites, technology, politics, trends, issues, or the market. Predictions were optional. As you'll see, the authors covered a wide spectrum. So turn the page, enjoy the parade of opinions, and see how your views match theirs.

Yucks and Yahoos

By Eric Berlin

Needing a product to remember passwords is a problem we shouldn't have.



FIND LOCAL INFO ON CITYSEARCH (HTTP: WWW.CITYSEARCH.COM), A NATIONAL DIRECTORY (ABOVE), AND NEW YORK'S METROBEAT (BELOW)



Best UClick. Comics online, the same day they appear in the papers! Getting most of my news from *The New York Times* and CNN's Web site, I went a long time without getting my daily *Doonesbury*. Now I never miss it. Arizona Central at <http://www.azcentral.com> is just one of the sites where you can find them. Along the same lines, I am also pleased as punch to find humorist Dave Barry online once a week at Herald-Link (<http://www.herald.com>).

Local Sites. These are sites that allow you to find things to do, wherever you are. This type of service is just getting started, but I'm pleased with what's already in place. In New York, I've used Metrobeat (<http://www.metrobeat.com>) many times to find where a show is playing, a particular type of restaurant, and to critique both the show and the restaurant so that others may learn from my experience. Soon, if your town is on the map, you'll have a site like this.

Yahoo. I know, this is a pretty obvious one, but I use Yahoo (<http://www.yahoo.com>) so often, particularly when I'm researching Rec Room, that I've come to take it for granted. They deserve another round of huzzahs every so often.

Worst Too Many Secrets. I have lost count of the number of passwords I possess. I know there's a new product that remembers passwords for you, but as far as I'm concerned, that's a solution to a problem we shouldn't have in the first place. One of the online phone books requires a password before you can use all its features. *Why?*

Spam. I realize I'm maybe two years too late complaining about this, but I was able to

ignore it before when just a few dumb ads would be mixed in with 50 relevant messages. Now the proportions have changed. Spam has taken over some of my favorite newsgroups, and I rarely click on my newsreader anymore. Canter & Siegel have won. Of course, on the other hand, I also don't like . . .

Cancelbot Abuse. Meant to be used only to cancel spam, some people just can't resist broadening the cancelbot's usefulness. I believe we predicted this in Surfboard a while back, but we never could have guessed the specifics—like when someone cancels messages that mention minority groups he doesn't like. Meanwhile, Great Britain is planning to wield a cancelbot to stop messages from getting within its borders. I almost prefer the spam.

Still No Micropayments. It pains me to say it, but the reason many businesses are flocking to America Online is because they can make some money there. On the Web, all they get is a chance to sell advertising. People who don't want to give their Web site's content away often offer a yearly subscription. But a tiny charge for each piece of information accessed will seem more appealing, and may turn more of a profit. Would you want to spend a few thousand bucks on the Oxford English Dictionary just to look up a single word? So where's the micropayment technology already? ■



People Power

By Linda J. Engelman



Best People Locators Online. From out of the quagmire of the Internet this year have come lots of new and improved methods for finding lost family and friends, including:

- White Pages telephone directories from around the world, like Kapitol's International Telephone Directory at <http://www.infobel.be/infobel/infobelworld.html>.
- Archives of adoptees and birth families who are using the Internet to find each other. Two of the best are BirthQuest at <http://www.access.digex.net/~vqi/top.html> and World Wide Registry at <http://www.phoenix.net/~aquarian/davids/birth.html>.
- Enormous registries where you can search by keyword to locate friends from high school, college, and the military. Try People Finder at <http://www.stokesworld.com/peoplefinder>, World Alumni

Net at <http://www.infophil.com/World/Alumni>, Switchboard at <http://www.switchboard.com>, Bigfoot's Global E-mail Directory at <http://www.bigfoot.com>, and the Global Mega-People Finder at <http://trendy.net/sites/peoplefind>.

- The Four11 registry at <http://www.four11.com> also deserves recognition for its continued growth and improved services.

Useful and Fun Downloads. Just like the real Post-It Notes on your desk, Post-It Software Notes from 3M (<http://www.mmm.com/psnotes>) is a software program for Windows (Macintoshes have a built-in version called Stickies). It lets you keep track of important dates, meetings, phone numbers, and more.

What a great software find this one was! Dogz: Your Computer Pet (<http://www.dogz.com>) has lovable little puppies run, jump, and play on your computer monitor while you go about your work!

A Bevy of HTML Authoring Tools. Many products seemed to hit the market all at once this year (PageMill, FrontPage, etc.), making it possible for anyone with the desire to create a Web page to do so.

HTML Validators. These are my choice for best online utility this year. They are incredibly helpful to Web-page developers, helping them ensure that all links work properly and that all source code is

error-free. Some of the best are Doctor HTML (<http://imagicware.com/RxHTML.cgi>), A Kinder, Gentler HTML Validator (<http://ugweb.cs.ualberta.ca/~gerald/validate>), and Weblint (<http://www.khoros.unm.edu/staff/neilb/weblint.html>).

PointCast (<http://www.pointcast.com>). This will surely be remembered as the king of the new technology that delivers customized news to your desktop. Look for lots more competition in this area in 1997!

The Help-Net Mailing List. Those who frequent it continue to be leaders in helping Internet newbies and seasoned pros navigate through cyberspace. To subscribe, send e-mail to listserv@vm.temple.edu with **subscribe help-net Your Name** in the message body.

The CGI-L Mailing List. The pros who hang out on this list have offered invaluable help to a countless number of Web-page developers. To subscribe, send an e-mail to listserv@vm.ege.edu.tr with **sub cgi-l Your Name** in the message body.

Worst Overdesigned Sites. It's becoming increasingly common to see graphics-rich Web sites with elaborate design schemes. While these sites are sexier to look at and make great portfolio pieces for graphic designers, they also result in a major slowdown for those of us who want to interact with them.

The Popularity of Mailing Lists. Victims of their own success, some lists grew so huge that many users dropped out. Keeping mailing lists under control and limited in size will be a challenge in 1997.

Predictions Censorship. The Communications Decency Act was hot news in 1996, but we haven't heard the end of this discussion. I predict that 1997 will see several major court cases challenging Internauts' right to police themselves.

Domain Squeeze. In 1997, many domain-name holders will lose the rights to their names. The proffering of domain names will become regulated by stricter rules, and individuals will yield to the corporate honchos with big bucks. Some designated authority (InterNIC or otherwise) will be forced to police trademark-infringement issues.

Graphical E-Mail Will Emerge. By year's end, many of us will be sending e-mail that includes images. It will become common for people to include varied fonts, multiple colors, pictures, drawings, and even embedded audio and video clips in their electronic correspondence. ■

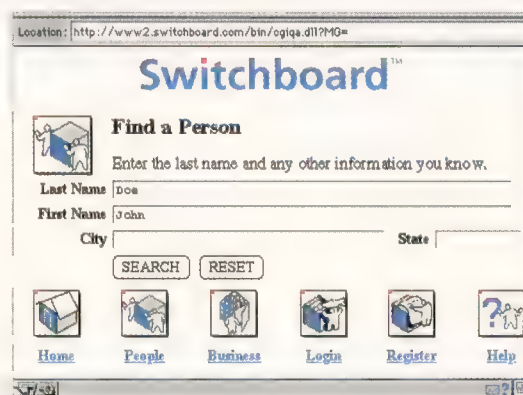
Les Jorgensen



BEFORE HTML TOOLS.
IT REQUIRED PRO-
GRAMMING SKILLS TO
DEVELOP A SOPHISTI-
CATED WEB PRESENCE



SERVICES LIKE WORLD
WIDE REGISTRY AND
SWITCHBOARD HELP
PEOPLE FIND ONE
ANOTHER.



For the Children

By Cynthia N. James-Catalano

The Stock Market



THE NET IS BRINGING
NEW DIMENSIONS TO
LEARNING AT AN
INCREASING NUMBER
OF GRADE SCHOOLS

Classes can
"adopt" an ani-
mal and chart
its progress.

Best Education. Some of the best things I saw develop on the Internet this past year were the educational resources. The Internet has a long tradition of use by university students, but only recently has it been purposefully developed into a widely used education tool. Primary and secondary schools are doing innovative things with their Net connections. Students can participate in a NASA program where aspiring space explorers talk with real astronauts, and classes can "adopt" an animal and chart its progress on the Net. And students around the world can collaborate on a project.

Beyond these fun classroom activities are the sites filled with information for students. Traditional library materials—encyclopedias, dictionaries, almanacs, and so on—have found their way onto the Internet in ever-increasing numbers. Many classic books can be found online. Experts in a myriad of fields donate their time to answer student questions. Students can find mentors on the Internet and keep in touch via e-mail.

This education boom isn't confined to the grade-school level either. Universities had the Internet first, and its use there is still thriving. College students can get course materials from the Internet in specially created sites. In some cases, they can even take classes on the Net. Students can form study groups that span geographic distances, a real advantage in universities with more than one campus. And, of course, the educational materials benefit college students as well. Teachers, librarians,

and parents have all contributed to the educational resources of the Internet. I predict the Internet, especially the World Wide Web, will continue to grow as an educational tool.

Which leads to another best of the Internet: child-friendly sites. I would much rather see Webmasters making places for children and families than have an agency dictate what all sites must contain. As a writer and librarian, I celebrate freedom of speech and expression. As a parent, I cringe at some of what's available on the Net. Fortunately, positive steps have been taken to allow children to use the educational resources and enjoy age-appropriate entertainment. Some sites have voluntarily labeled themselves "safe" for children, while others have had the title

bestowed upon them. Software is available that helps parents guide their children's Internet activity. Nothing replaces parental supervision; I have to decide what I want my daughter to see, but it's nice to have a helping hand in the form of software and child-safe tags.

Worst Advertising. Unfortunately, the Internet still follows that universal rule that we have to take the bad with the good. Advertising on the Internet has gotten worse. It's not just the increase in traffic. Now, when you visit a site or post to a newsgroup you can become a target for direct marketing, e-mail style. If you visit a site about your favorite television show, the next day you may receive e-mail suggesting you visit the network's other sites. After I visited an online mall, I received junk e-mail telling me all the wonderful things I could get free by filling out a simple form.

Advertising may be a necessary evil. After all, someone has to support Internet ventures. But two techniques should be eliminated: The first is the marketer who enrolls you on a mailing list whether you want to be on it or not. This is especially a problem for people with limited hours on the Internet or those who must pay for extra time. Essentially, the Internet user is being forced to pay for an unsolicited advertisement. Typically, you have to send e-mail to a specified address to unsubscribe from a group you never asked to participate in. That in itself is irritating because it's one more thing to do on a busy day. However, sometimes that's not enough to prevent

your being subscribed again at a later date. There aren't many ways to protect yourself, either. You don't know ahead of time who will use this technique when you visit a site. The only way to avoid it is to always surf anonymously. But anonymous surfing can be more time-consuming.

The second technique is a version of bait-and-switch. A site goes up and the creator advertises heavily—sometimes through junk e-mail—to get users to visit. It offers a free service, such as full-text versions of popular magazines. Then when the site creators think they have enough people hooked, they start charging

for the service. This is different than sites that state up front there is a fee but also offer free trials.

The good still outweighs the bad on the Internet, but there is one other thing that has been getting worse and worse: busy Internet service providers. Many people, me included, have experienced busy signals, service blackouts, and other barriers to our Internet connections.

I hope this problem will lessen as Internet service providers upgrade equipment and increase phone lines. Whatever else happens, one sure fact is that the Internet community is growing. ■

Truth, Justice, and the Internet

By Andrew Kantor

For the most part, it's been a good year for the Internet. The popular press's frenzied accounts of porn, terror, and bomb-building information are dying down—finally. Competition among ISPs is keeping access prices down and quality up. And more people are going online every day, thanks to the ubiquitous “visit our site” beckoning them from print and television ads.

But all is not joy in Mudville. The TV news is still ready to jump at any kind of kids-who-hurt-themselves-because-of-the-Internet story. And constitutionally challenged lawmakers like California's Dianne Feinstein still try to limit free expression online to “protect the children.” But the fight goes on.

Best Runner-up: Microsoft. For giving Netscape competition. Yes, I know it's ironic, but for once the Redmond giant is on the short end of the stick. One company owning 80 percent to 90 percent market share in an emerging market doesn't do much to encourage new ideas, but having Microsoft breathing down their necks keeps Jim and Marc on their toes and keeps Navigator the best browser on the market. Whether you're a Navigator or Explorer fan, you have to admit: The end user wins.

Winners: The American Civil Liberties Union and the Electronic Frontier Foundation. The ACLU's Cyber Liberties Task Force along with the EFF (and several other groups) led the fight to overturn the Communications Decency Act and keep free speech alive online. They did this not because they were paid to do it, but because it was the right thing to do. *That's* truth, justice, and the American way.

Worst Runner-up: C/net (proprietor of <http://www.news.com>). One of the last places I turn for

Internet news; I've seen too many instances of rumors reported as fact. Three cases in point:

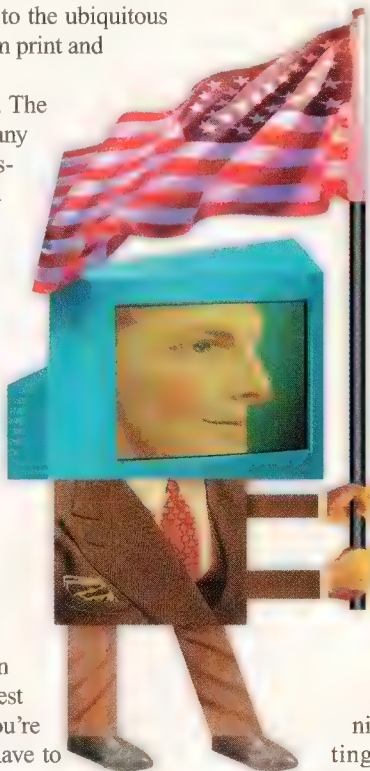
1) C/net reported, incorrectly, that anon.penet.fi was closed because of pornography charges. In reality, it was because of owner Johan Helsingius's inability to guarantee users' anonymity.

2) C/net perpetuated the myth that Lexis-Nexis's P-Trak system allowed users to find a lot of personal information about someone. In reality, it only provides a person's name (and possibly maiden name), addresses, and phone number (check out <http://www.lexisnexis.com/lnc/p-trak/p-trak.html> for the real story).

3) Finally, C/net reported that Lycos and Infoseek planned to track users of their respective sites and sell information about those visitors. In reality, the companies never planned to sell the info, but instead were going to use it to target personalized advertising. These stories could have been easily checked.

Winner: President Bill Clinton. He supported the Communications Decency Act despite admitting it might be unconstitutional (so much for his oath to “preserve, protect, and defend”), and even after it was declared as such. He backed—and continues to back—a stifling and dangerous key escrow encryption policy (see News, p. 18). And his administration is working with other world governments to impose restrictions on Internet-based speech that would be laughed out of court if the material were in print.

Regardless of his other policies (some of which I support, some I don't), Bill Clinton is no friend—and is, in fact, a dangerous enemy—of the Internet. ■



Clinton backed
the CDA despite
admitting it
might be uncon-
stitutional, and
even after it
was declared so.



WHAT DO CINET AND
BILL CLINTON HAVE IN
COMMON? THEY BOTH
MADE ANDREW
KANTOR'S WORST OF
'96 LIST



Peaks and Valleys

By Larry Loeb

Best *The Shortwave/Radio Catalog* (<http://itre.ncsu.edu/radio>). This list of hypermedia links put together by Peter Costello is the best ongoing hobbyist Web site. One of the neatest parts of the page is a What's

On Now button that searches a database to come up with current broadcasts from around the world. It's like an automated *TV Guide*.

Best Court Ruling. That the CDA was unconstitutional. Regrettably, the Department of Justice wishes to appeal.

Best Deal. Security Dynamics' acquisition of RSA Data Security in a stock swap valued at

\$300 million. Would you pay 300 times cash flow or 30 times revenue stream for a company and be happy? Security Dynamics did just that. What's so special about RSA? It owns the patents to the encryption technology that most companies have adopted for security over the Net. People think it can make serious money through licensing its technology as more developers port their software to comply with the SET (Secure Electronic Transactions) specification.

Most Rational Net-Business Decision of the Year. MasterCard and Visa agree—and get IBM, Microsoft, and Netscape to agree—to support the

SET standard for credit card transactions over the Internet. This avoids a bloody Betamax/VHS type of encryptions-standards war. The move can only strengthen the growth of Internet commerce. Bravo.

Best Voyeur Site of the Year. Search Voyeur at <http://voyeur.mckinley.com/voyeur.cgi> shows you the last 20 keywords people searched for using the Magellan search engine. It's updated every 20 seconds to those who have Netscape 2.0 or higher.

Worst Use of E-Mail. Autospammers and their data-mined source lists derived from an online service's membership directory. And the little trick of having the response you send to get off the list autosubscribe you to 10 new ones? Real slick. When are potential advertisers going to understand that this stuff really angers people, who then will shun the product simply out of spite? Or that they may never see the product mentioned in the first place because they delete incoming mail automatically via filters?

Year's Most Stupid Action by Microsoft Against the Net. Limiting the number of TCP/IP connections NT Workstation 4.0 can accept—first by code blocks, then by licensing. If you want interconnectivity, it costs \$700 for an upgrade—a “Microsoft tax.” If Microsoft hadn't made this move, it could have had the entire Inter/intranet-server market running on NT within six months. Now people will be forced by economics to seek other, probably non-Microsoft, solutions. On the bright side, it seems to have reawakened the Department of Justice's interest in Microsoft's business practices. ■



While Inter-
net telephony
technology
may be a little
chummy, the price
certainly
can't be beat.

Politics of Change

By David R. Noack

The Internet continues to make an enormous impact on research and development in the computing industry. The Net's growth also impacts society, igniting debates and controversies over political, social, legal, and ethical Net issues.

The breakneck pace of cyberdevelopment has left laws and lawmakers in the dust, racing to catch up with the online communications medium and its continuing role in how it influences the way we work, play, and collaborate.

Best Judges Rule Against the Communications Decency Act. Although technological breakthroughs in 1996 were important in terms of making the

Internet and World Wide Web more accessible and easier to use, a key event occurred not in a research lab, but in a Philadelphia courtroom where a panel of federal judges struck down the CDA.

The judges painstakingly took the time (unlike the lawmakers in Congress, who passed the legislation, and President Clinton, who signed the bill into law) to understand the Internet and what this new medium of communication is all about.

Until that decision, which the government has decided to appeal and is slated to take before the U.S. Supreme Court, the Internet increasingly found itself under attack from self-righteous zealots and

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Nominees for this year's Internet World Magazine Industry Awards are selected by readers of *Internet World* magazine, as well as by members of the Internet community at large. To submit your nominations (one per category), simply visit the Awards area of our Web site at <http://events.iworld.com/nominate.html> by January 31, 1997. All entries will be reviewed by our distinguished awards committee headed by Michael Neubarth, Editor-in-Chief of *Internet World* magazine. Winners will be announced, and Awards presented, on March 14th at a gala celebration at Spring Internet World 1997 in Los Angeles.

So be part of the tradition and enter your nominations today. It's your chance to honor all those who've expanded our vision of the Internet.

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For the best Internet software for business/corporate applications.

Outstanding Consumer Software Product

For the best Internet software for home/individual applications.

Outstanding Business Hardware Product

For the best Internet hardware for business/corporate applications.

Outstanding Consumer Hardware Product

For the best Internet hardware for home/individual applications.

Outstanding Service

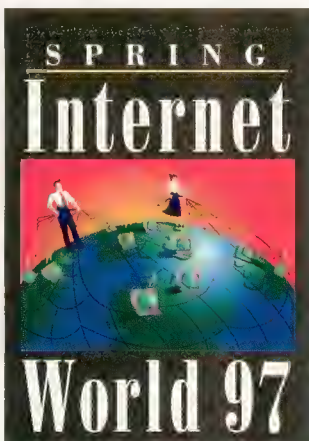
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1996 Inductees

Outstanding Software Product:

Progressive Networks, RealAudio

Outstanding Hardware Product:

MicroTouch Systems, WebStation

Outstanding Service:

Digital Equipment Corporation for Alta Vista

Excellence in Promotion of the Internet:

The American Civil Liberties Union (ACLU) for its challenge to the Communications Decency Act

Outstanding Achievement:

Sun Microsystems for Java

Best of the Internet:

Java from Sun Microsystems

1995 Inductees

Outstanding Software Product:

Navigator 1.1, Netscape Communications Corporation

Outstanding Hardware Product:

IBM SOHO Assistant, Rockwell Communications Nethopper

Outstanding Service:

Jerry Chih-Yuan and David Filo for Yahoo!

Excellence in Promotion of the Internet:

Mike Godwin, Electronic Frontier Foundation (EFF)

Individual Achievement:

Philip Zimmermann for Pretty Good Privacy (PGP)

Best of the Internet:

Yahoo!

1994 Inductees

Outstanding Software Development:

Marc Andreessen

Outstanding Hardware Development:

Telebit Corporation

Outstanding Service:

Alternet/UUNet

Outstanding Marketing:

Digital Equipment Corporation

WHO WILL CONTINUE
THE TRADITION?

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self-appointed censors who either see this new medium as a threat to civilization or do not understand the historical and democratic significance of free speech. While this is the first skirmish in a long battle to secure the right of free expression on the Internet, it must be the beginning in terms of an educational effort to explain what the Internet is and is not and how the positive applications of the Internet far outweigh the negative.

Internet Telephony. Although the current technology is still a little clumsy and the sound quality is not great, the price certainly can't be beat. The variety of client programs that allows users to talk to people across the street or across continents takes advantage of a technology that will improve over time as network bandwidth increases.

It is estimated that there are more than one million people using the Internet to make telephone calls. And the chairman of the Federal Communications Commission, Reed Hundt, has said that the old rules regarding the conventional telephone world should not apply. Before there are more attempts to clamp down on Net phones, we first need to understand and realize their legitimate potential.

Browser Battle. The browser battle between Netscape and Microsoft can only mean good things to Internet consumers in the form of better features and more innovation. Before and during a good part of 1996, there really wasn't a browser war. There was Netscape Navigator and the rest of the pack. Microsoft was a bit player in the browser field until late in 1995, when Bill Gates decided to put the entire Redmond, Wash.-based company on full Internet alert.

Microsoft's Internet Explorer 2.0 was really no match for Netscape's Navigator 2.0, but with the introduction of Explorer 3.0 and Navigator 3.0, the gap narrowed considerably. By the time you read this, both companies will have 4.0 versions out either in beta or as full-fledged products.

But the browser battle is not the end of the story. The next phase involves a much larger market and perhaps even the control of standards. It's once again a battle for the desktop and, in essence, the operating system and applications that allow us to do our work.

The winner of the browser battle—notwithstanding antitrust issues—will be in a dominant position to control the standards for a much larger market than this particular client program. The battle for the desktop may be starting all over again. Stay tuned.

Better Search Engines. Even with the best search engines, finding information on the Internet is often a needle-in-a-haystack job. If you're looking for sounds or images, the task is even harder. Now Lycos (<http://www.lycos.com>) allows searching for sounds and images via keywords and pull-down menus. This multimedia-search capability is a nice improvement.

Free the Data. The Electronic Freedom of Information Act, despite its shortcomings, is a step in the right direction of providing access to government

documents (see News, p. 18). The main problem is trying to convince government agencies and special interests that this is "public" information, already paid for by the taxpayer.

Worst ISP Taxes. The power to tax is the power to destroy. That was the opinion of Chief Justice John Marshall in the landmark 1819 Supreme Court case, *McCulloch vs. Maryland*. The essential truth behind Marshall's decision still holds true as some state and local governments consider taxing local Internet Service Providers (ISPs).

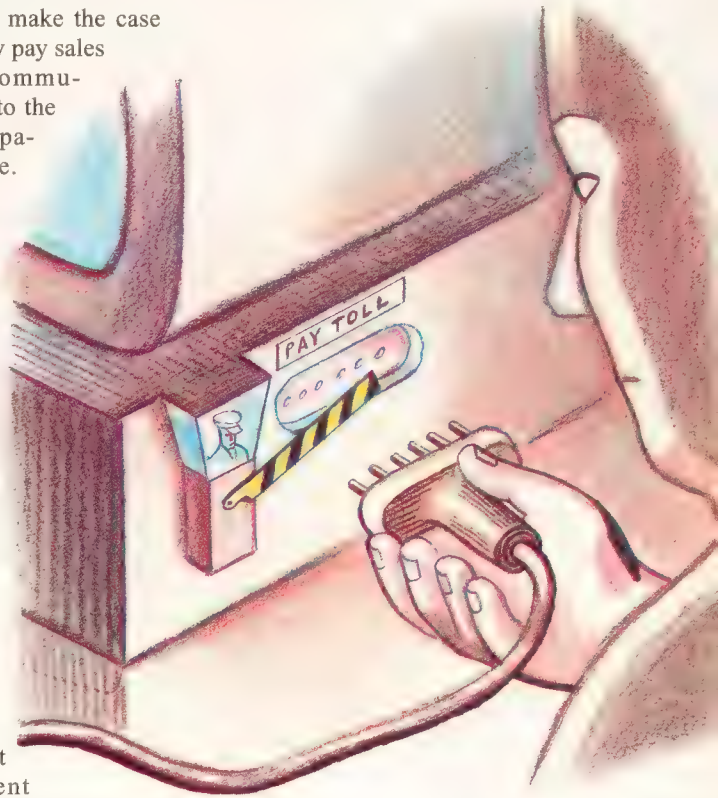
Take the case of Tacoma, Wash., where city finance officials unilaterally imposed a 6 percent tax on gross receipts generated within city limits. However, the City Council rescinded the tax. The bill was overturned because of fears that taxing the burgeoning high-tech industry in Tacoma would cost the city more money than it would gain through the tax.

But Tacoma is not the norm in this regard. States, including West Virginia, Tennessee, Texas, New York, and Ohio are imposing taxes on companies that link consumers and businesses to the Internet. The state taxes are in the range of 5 percent to 6 percent and are imposed on top of local taxes.

Local ISPs make the case that they already pay sales and any telecommunications taxes to the telephone companies for service. This additional tax to the ISPs, which would be passed along to consumers, is a form of double taxation.

And the tax situation is murky. For example, Netcom, a national ISP, started to tell its Massachusetts customers that the firm would be adding that state's 5 percent sales tax to their bills, which amounts to \$1 extra on a monthly bill. But Netcom instead decided to pay the tax bill itself, just to avoid liability down the road.

Prediction New Domains. The growth in commercial sites is taxing existing resources, so this year we'll see more top-level domain names with suffixes such as .corp and .med. The trick will be to decide what the domain names will be. ■



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CIRCLE NUMBER 49

That Wild & Crazy Net

By Dennis O'Flaherty

Best Java. Here's the best chance at unseating the hula hoop as all-time hottest U.S. fad. In all its incarnations, from the unstoppable torrent of how-to manuals through SDKs, T-shirts, lunch boxes, and so on, never have so many labored so prodigiously to produce so little. (I know, I know, "Just wait till next year!")

Simple Anti-Macrovirus Advice (Thanks to Brett Glass). Make your mail client's default opener for Microsoft Word files be the Word Viewer, downloadable from <http://www.microsoft.com> (there's also a viewer for Excel, which now has its own macroviruses). This will tell you what's inside a Word file without running any macros, and half the time you can probably zap a corrupted file then and there.

Most Delightful Beta Test Ever (I Would Have Paid for This One). The Oxford English Dictionary Online (<http://www.oed.com>). For writers or anybody else with a passion for words, there can't be more engrossing reading than the OED, with its treasure trove of quotes. Plowing through the volumes of the paper OED is daunting; using it online is incredibly cool, especially with the smooth searching facilities supplied by demon programmer Jeffrey Triggs. With access to the resources of the OED's historical corpus (the full text of some 600 works from *Beowulf* to the present), you've got Word City!

Best Non-HTML Web-Authoring and Administration Tool Around. Can you say something nice about Microsoft without having lots of torqued-up hotheads throwing rocks at you? Let's try. I think FrontPage (bought from Vermeer Technologies and improved in Redmond, Wash.) is a real gift to anybody who wants a full-fledged Web site but has a life beyond learning code. You can be a 10-year-old kid who wants to show off your pets (check out <http://www.frontpagenow.com/jodirowell>) or a financial outfit with more than 1,100 very complex pages and 67,000 links (<http://www.rcmfinancial.com>) and this package will take care of you, no sweat.

Good News and Getting Better. I've been following the Free Agent newsreader (<http://www.forteinc.com>) since its initial release (it's still very much worth trying if you don't feel like paying) and on up through the various versions, in beta tests on both 16- and 32-bit systems. It's now a very full and complex news and mail reader, close to its final release—fast,

slick, and with just about every feature anybody could dream of, as well as being fun to use.

A Downloader's Best Friend. If you don't have CuteFTP for Windows, get on down to <http://www.cuteftp.com> and get yours now. Clear, easy to use, context-sensitive help, integrated handling of index files (no need to launch Notepad to see what you've got), custom configuration for remote sites, and more. But mainly, way fast!

Best Download Serendipity. Go to <http://www.vironix.com> and get the latest beta versions of the NetFerret suite (E-mail Ferret, FileFerret, WebFerret, NewsFerret, and IRCFerret). Each of these is a clean little application (currently for Windows 95 and NT 4.0, with other platforms in the works) that organizes Internet searching with outstanding speed and simplicity. I gave WebFerret the name of a Russian criminal

I'm researching and it blasted through the search services and came up with five citations while I was turning around to get a pencil! As long as people keep coming up with stuff like this, how bad can 1997 be?

Best Nostalgia Trip. Reading my 1994 copies of *Internet World*. Try a few yourself, it might as well be all about horseless carriages and Chappaqua meetings. Them days is gone forever, friends. . . .

Worst Surprise of the Morning E-Mail Check. Hitting the Open Attachment selection on Eudora's File menu and having the computer's Early Warning System blast me out of my chair to

announce the presence of Wazzu, one of the ever-spreading plagues of macroviruses.

Absolutely Worst Botch. It's the egregious Telecommunications Act of 1996, which completely ignored the Internet's potential as a signpost to reform. The Net's open architecture, which counters the drive of network and service providers to create bottlenecks that they can leverage for profit, might have given the act something socially useful to aim at. Instead, our legislators made the world safe for big information-biz money, inviting it to use the Internet as a framework for vertical integration.

Hey, with the top three long-distance companies contributing \$2.1 million in campaign funds to members of Congress in the last six months before passage, and the seven Regional Bell Operating Companies (RBOCs) contributing \$2.3 million, whaddya expect? (In case you're curious, the RBOCs liked



My computer's

Early Warning

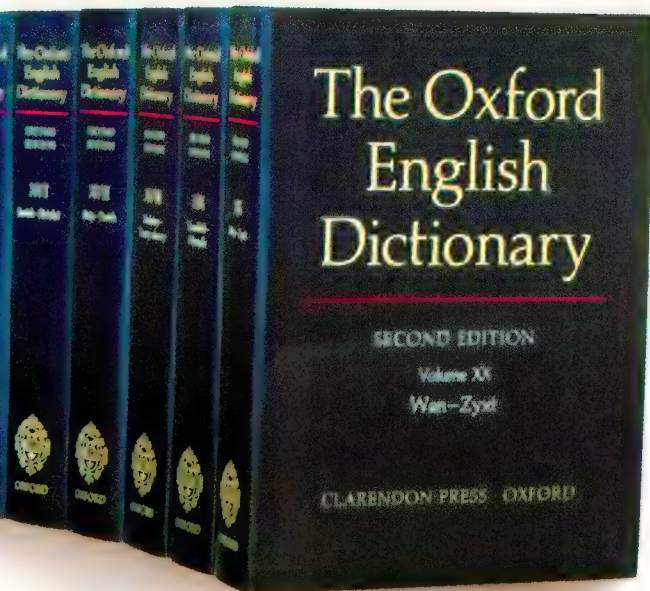
System blasts

me out of my

chair to an-

nounce the pres-

ence of Wazzu.



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AND MAGNIFYING
GLASS. THE ONLINE
VERSION OF THE
OXFORD ENGLISH
DICTIONARY MAKES
SEARCHING EASY AND
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**\$500 PCs? You
Buck Rogers
fans will have to
wait 'til the
next century for
toy Websurfers.**

the Republicans and the long-distance types were for the Democrats.)

Silliest Side-show. The browser war between Netscape and Microsoft, complete with the waving of anti-trust big sticks, bug paranoia, lots of hysterical invective, and so forth. As Patricia Seybold remarked recently, the browser war was clearly a PR war, as hollow as the latest announce-

ment of somebody-or-other's intranet strategy, so why not just get on with real business? My nomination for the real war behind the browser hoopla: a struggle for dominance in distributed objects and Web-accessible databases.

Best Test for Maturity and Emotional Balance. Waiting for movie clips, animations, and large Java pages to load. This is followed closely by watching a streaming video running in fits with out-of-synch sound. By the time I can afford the bandwidth for all this to run smoothly, people with *real* bandwidth will probably be getting holograms or teleportation.

Most Troubling Global Trend. More governmental attempts to censor or otherwise control the Internet. Germany, Finland, Russia, the United States, and China are at it. Chinese Web surfers have had some 100 sites barred to them as sources of "spiritual pollution" just as Microsoft released a Chinese version of Explorer 3.0. The Internet makes the Robespierres and Cromwells of this world crazy, no matter where they come from. And as Internet development becomes more intense, political efforts to control it can only get more frantic.

Predictions Suite Shakeout. All the second-string navigation suites (i.e., everything that isn't Navigator or Internet Explorer connected) will go away in 1997. Some niche browsers will hang on—for example, IBM has promised to ship beta code for a Java Virtual Machine for Windows 3.x, having sensibly noted that Windows 3.x was expected to retain more than 55 percent of the desktop market at the end of 1996. Why not sell a separate browser to give all those folks a taste of Java?

OS Integration. The real race will be to meld the browser most swiftly and effectively with the operating system, and although Netscape has made brave pronouncements about its determination to accomplish this by promoting the Internet Inter-ORB Protocol (IIOP), my bet is on the guys who already own the desktop. Netscape isn't going to go away, but it isn't going to beat Microsoft at its own game, either.

Fee-based Failures. Fewer people will try to make a buck offering nonbusiness content on the Web. I don't care if it's Time-Warner's publishing empire or some startup's cute idea for an online science-fiction serial, it isn't going to fly as a paid-for-by-Web-subscriptions enterprise in 1997. For whatever reason, people are just not eager to pay for the kind of stuff they get in paper magazines and newspapers, or on TV and radio, when it's on the Web. Not in any kind of big numbers, anyway.

Joe Esposito, CEO of Britannica Online, has acutely observed that such material is bound to be less profitable on the Web than "low-value-added publishing," stuff that's mostly information with little massaging. I predict that within the next year or so, the only reliably profitable stand-alone Web entertainment will be subscription pornography. By stand-alone I simply mean that a lot of the present Web magazines, newspapers, and so forth will be absorbed by info-business enterprises willing to subsidize their continued appearance.

Superior Searches. Somebody will finally figure out the easiest, most effective way to find things on the Web and the galaxy of search services will implode. Search services continue to multiply like field mice at harvest time. Because they're all paid for by some sort of real money, the financial irrationality of the situation can last only as long as there's hope that the one you're backing is the one that will win. When one of these outfits becomes the *TV Guide* of the great cyberwasteland, the balance sheets of the remaining competitors will become barren planets.

Network Computers. Thin clients will make smart companies fatter, but you won't be surfing the Web on one. Did anyone ever really think Grandma would become a Web freak because the kids bought her a \$500 PC? Nah, we all knew network computers were a way to get expensive PCs off inessential desktops, and with Citrix's WinFrame for Networks, you don't even have to give up the Windows apps on your LAN. You *Buck Rogers* fans will have to wait till the next century for toy Websurfers.

Free Do-It-Yourself Kits for Java and ActiveX Viruses on Hacker BBSs. For all I know they're out there already. Such kits already exist for building more familiar types of viruses. Java and ActiveX are harder, right? And it'll be such fun figuring out how to take tame applets and make them walk on the wild side. Let's hope the forces of Truth, Justice, and the American Way are going to be ready for this one.

DB Dollars. Web access to company databases will grab the attention of money and PR types. Oracle8, IBM's Database Extenders, and Informix's Universal Server are pointing to an integration of object technology and relational databases that will make multimedia and other complex data types easier to manage on the Web. Money will rain from the skies on people who can deliver the goods in this area, and grotesque IPOs will once again make civilians scratch their heads: What will those crazy Internet people think of next? Just wait till 1998! ■

Commercial Success

By Rosalind Resnick

Best The PointCast Network (<http://www.pointcast.com>). When it comes to online news delivery, this popular screen-saver-cum-personalized-news-service has the newspaper industry beat. Is it any wonder why PointCast is raking in millions of advertising dollars and *The New York Times* is beating a path to its door?

Amazon.com Books (<http://www.amazon.com>). A huge selection of books and a pioneering business model have propelled this plucky online bookseller to the top of the retail hit parade. Now if only I could get Barnes & Noble to pay me an 8 percent commission for everyone I sent to its store!

Microsoft and Netscape Browser Battle. A little competition is good for everyone. No matter which company wins, the real winners will be the surfers.

Worst Bulk E-mail Services. If you thought that spamming went out with Canter & Siegel, think again. E-mail services that scoop up addresses from newsgroups are clogging mailboxes all over the Net with unsolicited come-ons.

Web Search IPOs. Looking for a quick way to lose your shirt on Wall Street? Buy 100 shares of an Internet index or search engine company and watch them sink

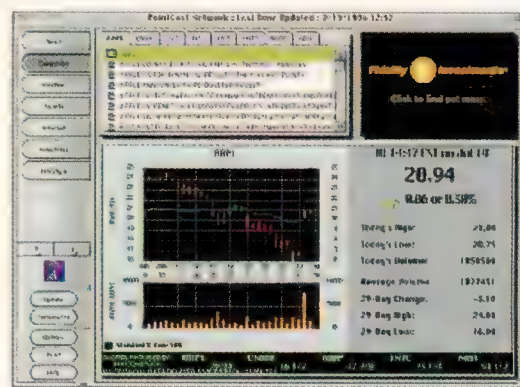
like rocks. Shares of Yahoo, Infoseek, and the rest of the pack are trading at a fraction of their opening prices.

Big Disappointment: Banner Advertising. When HotWired pioneered this business model two years ago, it looked like the answer to every Web publisher's prayers. Today, most are scraping by with click-throughs and link exchanges and praying for venture capital.

Predictions Blowout. A surge in audio and video transmissions will cause a full-day blackout on the Net. You thought America Online's Black Wednesday was bad? Wait until the Net collapses under the weight of all those real-time video clips and free phone calls.

E-Commerce Ahoy! Internet banking will become a reality. With major financial institutions coming onto the Net, 1997 will be the year we stop reading about e-commerce and start making it happen. ■

THE POINTCAST NEWS
DELIVERY SERVICE
DEBUTED ON MORE
THAN A MILLION
DESKTOPS IN 1996.



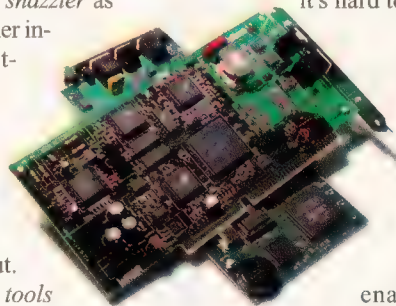
Red Hot, Not

By Kevin M. Savetz

Despite endless hype and mountains of press releases, not a whole lot really happened this year. The good stuff got a little better, the bad stuff got a little worse, but things more or less chugged along unremarkably during one more lap around the sun.

Best Access got a bit faster as 33.6-Kbps modems came to fruition, and *the Web* got snazzier as Java, animated GIFs, and yet another incarnation of HTML gained footholds. *The Net* got a bit more useful as banks came online to offer secure access to account information, and powerful new search tools like HotBot (<http://www.hotbot.com>) and search.com (<http://www.search.com>) made their debut.

Multimedia communications tools took small but notable steps forward. RealAudio was improved markedly, and several novel chat systems, such as Virtual Places, were created. ISDN slowly gained in popularity, cable modems evolved into little more than tantalizing clouds of vapor, and the first murmurings about ADSL began to stir. However, these timid steps forward pale in comparison to the heaving steps back.



Worst Hostile applets, service brownouts, and torrents of e-mail spam reared their ugly heads. Online publishers also learned that the Internet was not the pot of gold they thought it would be. Countless newsletters and e-zines launched with great fanfare, and many folded after learning that it's hard to turn a profit online.

The spam alone, consisting of ads for mediocre products from companies that couldn't care less about the Net community, was an alarming reminder that the days of cooperative anarchy on the Net are gone.

Predictions Filters. In 1997, expect to see applications that enable users to isolate themselves from unwanted information as filtering tools become more common. In '96, the only Internet service providers that took proactive action to prevent e-mail spam were America Online, CompuServe, and Sprint, who found themselves in court over it. Expect more ISPs to offer similar filtering services, or watch as users take matters into their own hands. ■

DIAL-IN INTERNET
USERS WILL GET A LOT
MORE JUICE WITH
ADSL MODEMS.

Literary Bent

By Richard Seltzer

Best Project Gutenberg at <ftp://ftp.prairienet.org/pub/providers/gutenberg/etext96> (note the new address). This is the best source from which to download free electronic texts. It now has 640 books and is adding dozens of new ones every month. In addition to well-known classics, you'll find lots of fun and interesting 19th-century works of which you may never have heard. The Web site at <http://promo.net/pg> looks prettier and, if you aren't an addict, can be very useful; but it's not as up-to-date as the FTP site.

OnLine Books Page at Carnegie Mellon University (<http://www.cs.cmu.edu/Web/books.html>). This is the best place to search for free electronic books. You can search by author or title or browse across numerous sites that have electronic books.

The Bartleby Library at Columbia University (<http://www.columbia.edu/acis/bartleby>). Bartleby has gone to the trouble of making these texts look good. You can't beat this site for reading poetry and reference works online.

Stony Run (<http://oregon.uoregon.edu/~rbear>). The best site created by a poet. You'll find excellent self-published poetry, plus works by Edmund Spenser and other 17th- and 18th-century English authors.

The Children's Literature Web Guide (<http://www.ucalgary.ca/~dkbrown>). This is a valuable resource for parents, teachers, and writers.

Amazon.com Books (<http://www.amazon.com>). It has more than a million titles for sale at discount prices. Authors and readers can post comments and customers can fill out profiles to receive e-mail notices about new books of interest.

Drew's Scripts-O-Rama (<http://pobox.com/~drew/scripts.htm>). You'll find more than 500 movie and television scripts—some classics and some new and unproduced works. Most of these you can't buy in stores. If you love movies or want to learn how to write them, this site is a must.

EachMovie (<http://www.eachmovie.com>). After you invest the time and effort to rate movies you have seen, this site acts as an intelligent companion to help you identify the movies you are most likely to enjoy.

Quest! Home of NASA's K-12 Internet Initiative (<http://quest.arc.nasa.gov>). This is a great source for science-education material. The Live From series is particularly valuable.

Boston.com, the online edition of *The Boston Globe* (<http://www.boston.com>). Rather than just mimicking the print newspaper, the online *Globe* has created a new kind of environment, with info provided in a variety of ways, plus chats and other features.

Chess Space (<http://www.chess-space.com>). Chess aficionados must come here. This site consists mostly of pointers to other resources, but it's comprehensive and easy to use.

Worst Graphics (especially large ones). Too many graphics say nothing.

Predictions Personal Publishing. Software (like Internet Fast Forward from PrivNet) that puts control of the look and feel of Web pages back in the hands of users will flourish—zapping banner ads, cookies, frames, etc.

Banners Lose Backing. The banner-advertising balloon will burst.

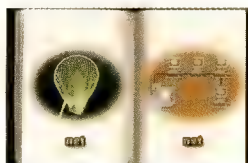
Value Wins. Sites that provide only graphics and pointers, without real content and value-added services, will die from neglect. Businesses that understand and serve their Web audiences will thrive.

Real-Time Rises. Chat and bulletin-board discussion software will be integrated so you can hold scheduled chats that draw audiences and easily save the results in threaded form for follow-up discussions. And the online event and discussion business will take off.

Web TV Flops. First-generation low-cost Web devices will fail in the marketplace and second-generation devices that make it easier for users to be participants, not just consumers, will emerge.

More Books Online. Traditional publishers will finally wake up to the fact that free, full-text online versions of books help promote traditional book sales.

Asian Commerce. Online transactions from Asia will grow at a faster rate than transactions from the United States or Europe. ■



AMONG THE
MANY LITERARY TREASURES
NOW ONLINE ARE CHILDREN'S
BOOKS AND ENGLISH
CLASSICS.



Spidery Wonder

By Joel Snyder

Best AltaVista. Choosing the best of '96 is easy: It's AltaVista. At first I thought it was a fluke, but Digital Equipment Corp. has really come through.

In 1996, AltaVista became one of my top research tools when starting a new project. In fact, it has been so impressive that my company went out and bought Digital Alpha machines (the same hardware AltaVista runs on) to run our business, and we're ecstatic. Intel, roll over. Alpha is the way to go.

Net "Pervasive-ness." The Net may have been new in 1994 and hyper in 1995, but 1996 was the year it became pervasive. More old friends found me through the Internet last year than ever before. And these aren't folks who've had e-mail for 10 years; they're people I haven't seen for a decade and who have nothing to do with computers, except that they're on AOL, CompuServe, or whatever MCI calls its Internet service this week.

Even my family is wired, across Arizona and up and down the California coast. (The only holdouts are my parents. But since my 76-year-old father retired last summer and announced he's going to learn to use a computer, I'm sure they'll both be online this year.)

Of course, there's a bad side to this as well. I discovered that if I was a poor letter writer on paper, I'm just as bad at corresponding electronically.

Worst Junk E-Mail and Spam. I have to single out those who want to exploit the community of the

Internet by forcing their commercial message on everyone else. Junk e-mail and newsgroup spam is out of control, and the pitiful rationalizations of

those who employ it don't move me at all. I can't argue with banner ads on Web pages: Information may *want* to be free, but it never really is. But the marketers who take our time and bandwidth with unsolicited advertisements are getting worse every day.

The ISPs of the world are the key to solving this problem, but few are willing to take the responsibility and burden of being good citizens. Policy isn't enough. Ask your ISP what technical solution it has in place to keep from contributing to the problem.

Net Fragility. And in the mixed blessing category, let's not forget the fragility of the Internet. In many ways, the Net is less stable and reliable than ever—closer to being pushed over the edge by either simple mistakes (such as those that AOL, Netcom, Sprint, MCI, and others all saw) or malicious mischief (such as the recent SYN bombardments all over the Net).

These are regrettable and give the Internet a bad name. But at the same time, we're learning from these problems and building a lean and mean network. The Internet may never be as reliable as the telephone network (in North America, anyway), but it will also never cost as much. The problems cause us pain, but as my ever-cheerful squash partner opines, "No pain, no gain." ■



ALTAVISTA RAISED THE BAR
ON SEARCH ENGINE PERFORMANCE AND WON
MANY FANS IN 1996.



The Net may
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sive. Even my
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Outer Limits

By Brad Stone

A FAR-OUT WEB DESTINATION IS THE NASA SITE, WHERE STUNNING IMAGES OF SPACE EXPLORATION ARE POSTED, INCLUDING THE PLANETS AND THE MOONS OF JUPITER BELOW.

Best NASA's Web Sites. First, Galileo arrived at Jupiter in late December 1995 and returned dozens of high-resolution photos. Then there were the seven shuttle missions over the course of the year, and last August the astounding news that life may have once existed on Mars. In each case, the place to find the latest info and images was on the Web at



panel helped make the Internet safe for our First Amendment rights.

Worst The Presidential Candidate Web Sites. While reviewing the presidential sites for the article "Politics '96" (Nov. *IW*), I tried to keep my

<http://www.nasa.gov>, the starting point for NASA's remarkable collection of Web sites.

NASA's pages are fascinating because they're not micromanaged by Washington. Every arm of the space agency is free to put up information on its own projects. So, in addition to PR-style info and images on news-making discoveries, there are sites on less-publicized plans, like the October '97 Cassini mission to Saturn (<http://www.jpl.nasa.gov/cassini>). For space freaks or mere earthlings, the NASA pages proved a Web highlight in '96.

AltaVista (<http://www.altavista.digital.com>). Digital

skepticism in check. It was early in the race and Dole, Clinton, and Perot could still offer something current and useful. Alas, more than midway through the race, Dole's site (<http://www.dole96.com>) was one week behind the news, and Perot (<http://www.perot.org>) and Clinton (<http://www.cg96.org>) were each three days behind. None of the sites offered an active e-mail list, and none were nimble enough to address the issues, accusations, and news of the day (let alone the hour). They were just commercials. What's the point?

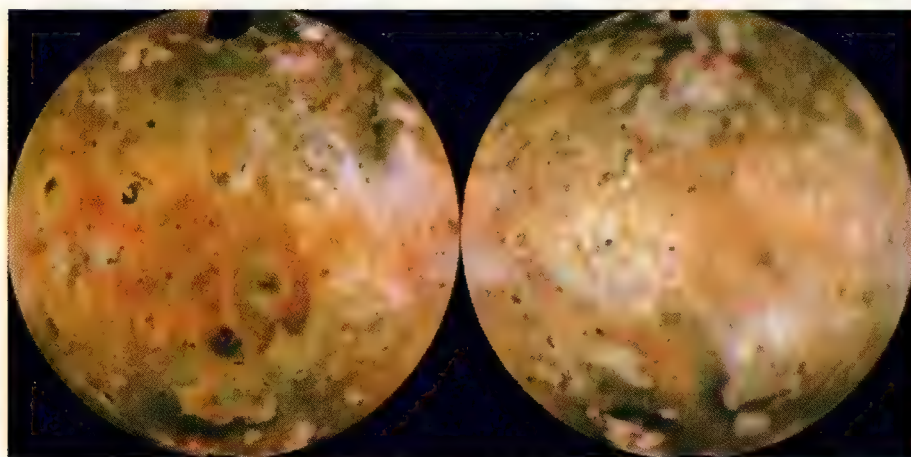
Church of Scientology. L. Ron Hubbard's secretive organization continues to play the role of the Internet's evil empire. This year it spammed the **alt.religion.scientology** newsgroup into incomprehensibility, sued several more Netters for discussing Church "secrets," and successfully brought down the popular anonymous remailer anon.penet.fi, based in Finland. The remailer was a shroud for drug addicts, gay teens, and abuse survivors who were seeking help online. Its end is a great loss for the Internet.

Predictions The Further Decline of Commercial Online Services. More than half of all household Internet users will use an Internet service provider—for the first time, twice as many users will connect through ISPs as through online services.

Death of the Static Web Site. At first, the Web was lauded for leveling the playing field: Anyone could put up a relatively simple home page. Now sites are getting more

interactive—and expensive to produce—and the old text-and-image page will continue to die out. That means fewer personal sites will be able to compete with commercial ones.

Fast-Action Online Games. Fast-action online gaming will be the Net's hot new application. Online gaming startups MPath (<http://www>.



Equipment Corp.'s search engine debuted in December of 1995 and quickly established itself as an invaluable tool for Web surfers. It scours more than 16 million Web pages, 13,000 Usenet newsgroups, returns results quickly, and is free. HotBot who?

The Federal Court that Struck Down the Communications Decency Act. The three-judge



Introducing the 56K download
over analog phone lines.

Introducing the next generation
of Internet access.

Introducing the new standard
for online speed.

Introducing x2™ Technology from

US Robotics®

The Biggest Breakthrough In Online Communications



For years, 33.6K was thought to be the practical transmission speed limit over analog phone lines. Not any more. New x2™ technology from U.S. Robotics shatters this barrier. Now you can get up to 56K of actual transmission speed when you download.

This revolutionary breakthrough is brought to you by the advanced team of engineers at U.S. Robotics. Their knowledge of the increasingly digital telephone system

Whether you're surfing the net, telecommuting from home, or accessing information from a mobile location, x2 can help you get what you want, when you want it.

Only U.S. Robotics Can Bring You x2 Technology



U.S. Robotics is uniquely positioned to bring you this breakthrough. We are the #1 provider of information access solutions in the world today. That's because our communications products are favored

56K. It's not just a new kind of modem. It's a new

makes x2 possible. x2 takes advantage of the typical network configuration found when an analog subscriber connects to a digitally connected server. Because it bypasses the analog-to-digital conversion in the downstream path, x2 can use nearly all of the available 64K network bandwidth.



x2 takes advantage of the highly digital phone network.

(Upstream data, typically less speed sensitive, travels at the standard V.34 rate.)

The result is a completely new kind of transmission technique. Based on



x2 practically doubles return path

“encoding” rather than “modulation,” it can give you download speeds that you never thought possible. What's more, with standard V.42 bis compression, x2 can download at speeds up to a blistering 230.4K.

on both the server and end-user sides. This is important, since a communication technology must be in place on both ends of the connection to work properly for you.

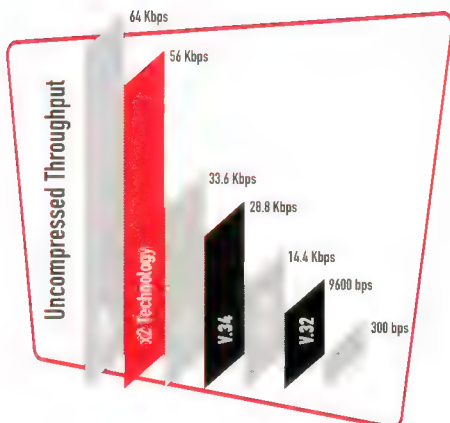
Connecting More People Than Anyone Else In The World



U.S. Robotics Total Control™ Enterprise Network Hubs are widely used by Internet service providers, corporate sites, and online services. Our Megahertz® brand is the leading choice for mobile users. And more people choose Sportster® modems than any other desktop brand. All told, no company puts more communication power into the hands of more people throughout the world than U.S. Robotics.

x2 technology is being supported by over 30 industry leaders worldwide. These include:





Comparison of actual line throughput speeds.

Creating The Next Worldwide Standard



As the first company to bring you 14.4K, 28.8K/V.34, and 33.6K technology, U.S. Robotics is the leader in blazing the trail toward faster standards. In fact, we've already submitted x2 to the ITU-T board, and expect it to become the standard of the future.

But greater speed is in demand right now. And, because x2 was designed to work with existing V.34 standards, we're able to bring it to you.

Offering x2-Capable Products To Meet Every Need

Sportster, the world's #1 selling modem,

kind of technology.

Supported By Major Internet Service Providers



America Online, CompuServe, and MCI are just some of the more than 30 ISPs worldwide that are implementing x2™ in their access servers. With such overwhelming support, x2 will become the technology of choice for anyone who wants the very fastest in online connections.

Simply check our website to find out if your ISP supports x2 technology, or contact them directly.

Adopted By Industry Leaders



x2 has been embraced by every sector of the communications industry, including major retailers, chipset makers, and original equipment manufacturers. This widespread acceptance ensures that x2 will be available to you on a variety of platforms, both now and in the future.

is now shipping in an easily upgradable version, and has been since August 1996.

Our Total Control™, NETServer, MP, and Courier™ products are flash ROM upgradable, with no extra equipment to buy.

And our Megahertz® PC Cards will be x2-capable beginning in early 1997.

Whatever your needs, you know they'll be met at incredible speed—and a reasonable price—whenever you see the x2 logo.



U.S. Robotics features a complete line of x2-capable products.



The breakthrough you don't have to wait for.



A graphic download
at 14.4K speed.



In the same amount of
time, a 28.8K modem
downloads this much.



While x2 Technology's
56K speed gives you
the whole picture.



Faster Downloads From The Internet



While x2™ is ideal for any online application, you'll really notice the increased speed when accessing graphics-heavy web pages or high bandwidth audio and video files.

x2 can cut the time you spend waiting for downloads nearly in half. You'll spend more time surfing, and less time waiting.

Helping Critical Business Data Flow Faster



Now, busy work-at-home professionals can replicate Notes™ files, download spreadsheets, and access their corporate intranets faster than ever. With x2 on both ends of the communication chain, you'll see a remarkable savings in time. And in today's business world, time is money.

The Reasonably Priced Alternative To ISDN



Until now, 64K ISDN (*Integrated Services Digital Network*) lines were the only way to get downloads this fast. But ISDN lines are expensive to install and maintain.

With x2 you can get comparable speeds over the same telephone lines you're using now. In fact, the vast majority of today's North American phone lines can support x2 connections.

Available Now At Major Retailers



You can find x2-capable modems from U.S. Robotics on the shelf today wherever you buy computer products. Just look for the x2 technology logo. It's your guarantee that you'll be able to upgrade quickly and easily to the fastest connection speeds available over regular phone lines today.

Bringing Online Communications To The Next Generation



As the new standard for online speed, x2 technology gives you the access solution that's right for today's needs, and ready for tomorrow's innovations. To learn more about how x2 can save you time, call us toll free at 1-800-525-USR1 or visit us at www.usr.com/x2.

x2 technology. It's the future of online communication, and it's available today, only from U.S. Robotics.

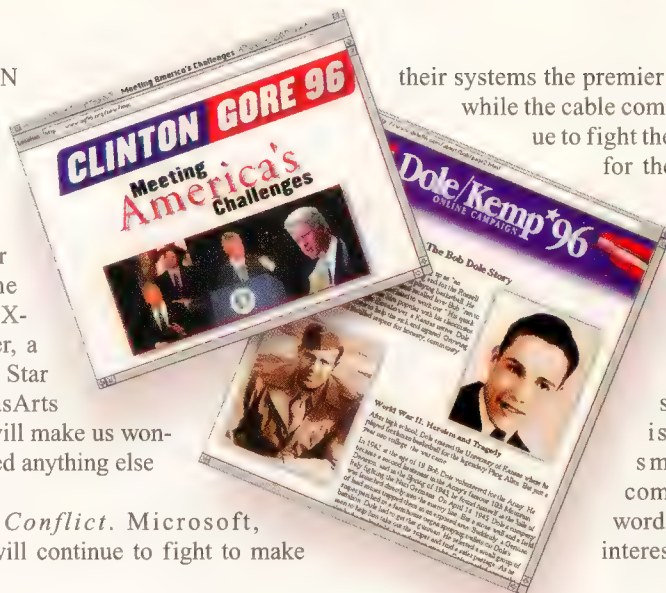
Call us toll free: Desktop users dial 1-800 DIAL USR. Corporate customers dial 1-800 USR CORP. Mobile users dial 1-800 LAPTOPS. U.S. Robotics 7770 Frontage Road Skokie, Illinois 60077, www.usr.com/x2.

mpath.com) and TEN (Total Entertainment Network at <http://www.ten.net>) will roll, bringing Duke Nukem 3D and other multiplayer shoot-'em-ups to the masses. Meanwhile, X-Wing vs. TIE Fighter, a network multiplayer Star Wars game by LucasArts Entertainment Co., will make us wonder how we ever called anything else a video game.

More Vendor Conflict. Microsoft, Netscape, and Sun will continue to fight to make

their systems the premier Internet platform, while the cable companies will continue to fight the phone companies for the Internet-connectivity market.

There will be more strange bed-fellows, more security scares, more reports that show the Internet is getting larger, smaller, or more commercial. In other words, things will stay interesting. ■



Pay the Piper

By Jeff Ubois

Best Ads. They are annoying, but advertisements underwrite the best content and services, from the search engines like Infoseek, Lycos, and Excite to guides like Yahoo to newspapers and radio stations.

New Media. Sure, it can clog the plumbing, but the addition of rich media types—sound, video, telephony, and animation—is a good thing. Everyone talks about the expansion of the Net in terms of the number of new users, but the absorption of all sorts of media is just as important.

Microsoft vs. Netscape. Let them beat each other bloody. In that war, it's the end users who win.

Java. It's mostly silly screen trash at this point, but it has the potential to change the software game entirely by slashing distribution and market-entry costs, and maybe even reducing "WinTel's" grip on the world.

Worst Ads. Of the spam variety, that is. Spam is murder. If spammers waste five minutes a week for 50 million people, that's 23,782 person years, or 321 lives at 74 years each.

Federal Encryption Policy. It's running several years behind schedule on plans for 1984, but the Clinton administration and assorted agencies in Washington just won't quit with plans to create a surveillance society. Ironical twist: The dearth of good security products brought on by these misguided policies contributed to the hacks of the CIA and Justice Department World Wide Web sites.

Censorship. The U.S. government is in good company: China,

Singapore, Iran, Germany, and Russia all agree on the desirability of Net censorship. Makes you wonder what else they have in common.

The Death of Usenet. For some folks, it became intolerable a few years ago. Others still struggle to post useful material, but the signal-to-noise ratio just keeps dropping. A tragedy of the commons.

Predictions Copyright Calamity. Atrocious federal copyright legislation hasn't happened yet but seems likely next year. Patent and Trademarks' Commissioner Bruce Lehman's copyright jihad against the public on behalf of the publishing interests isn't well known or understood, but according to University of California at Berkeley scholar Pamela Samuelson, "Not since the King of England in the 16th century gave a group of printers exclusive rights to print books in exchange for the printers' agreement not to print heretical or seditious material has a government copyright policy been so skewed in favor of publisher interests and so detrimental to the public interest."

Browser Share Shift. Netscape's share of the browser market will drop to less than 50 percent, while Microsoft's will climb to equal or exceed it.

Net Terror Backlash. A terrorist or drug-dealing group will be found using Internet communications to conduct their nefarious business, prompting calls for tighter regulation. ■



Mostly silly
screen trash at
this point, Java
has the poten-
tial to change
the software
game entirely.

Of Mice and Web

By Gus Venditto

THE MIGHTY
INTELLIMOUSE
MAKES SURFING
EASIER.

Best Microsoft IntelliMouse.

File this under the heading of "Why didn't they think of this sooner?" Microsoft's IntelliMouse looks like any other mouse, except it adds a small wheel you can use to scroll up and down in pages that are too long to fit in a single window. This simple addition makes it possible to surf the Web without ever touching a keyboard. The drawback: The only product to support it is Microsoft's Internet Explorer; Navigator and other non-Microsoft browsers will need to write software to make the scrolling wheel work. Let's hope they do—and soon.

Norton Anti-Virus 2.0.

Virus protection is an ongoing battle. Without regular updates, antivirus software can't detect the latest threats, and if you surf the Web regularly you're exposed to the very latest in antisocial attacks every time you browse. Symantec's Norton AntiVirus 2.0 (<http://www.symantec.com>) not only checks every

file you download with a browser, but it will update your antivirus database automatically from the company's Web site. Early detection not only minimizes the damage on your system when a virus is caught, it helps keep viruses from spreading.

Worst Junk E-mail. This is not why the Internet was created. Junk e-mail may not waste paper, but it does consume valuable bandwidth, slowing down other Internet traffic. A tip of the hat to America Online and CompuServe for trying to put an end to its abuse.

Unmoderated Newsgroups. Popular newsgroups that are not moderated are being smothered by foolish spamming. It's time to thank the selfless moderators who help keep a precious few newsgroups free of such glut, and to recruit a few hundred more.

Internet Telephony. While Internet telephones can save people a bundle on long-distance phone calls, the technology itself leaves much to be desired. Users must be willing to overlook mysterious dropouts and garbled transmissions. For some users, if they added up all the time they wasted trying to get the connection right, they'd be better off taking a second job and picking up the telephone to make a call.

Censorware. Products that claim to protect children from pornography and hate literature on the Web aren't doing the job. They're too easily fooled. And the products that do provide a safe environment by allowing kids to see only rated sites provide a view of the Web that would bore even Mister Rogers. The solution is for more Web sites to rate themselves with SafeSurf and RSACi—and too few Web sites are making the effort. The problem will plague Web publishers until it's solved.

Predictions Bandwidth Wars. These will break out as trials begin in selected regions for cable and ADSL "modems." Early adopters will report they've reached the Promised Land, fueling the demand for both of these technologies. Dial-up users will contemplate moving to areas served by either one. Tip: Buy real estate wherever cable modem and ADSL trials open.

Bye-Bye Flat Fee. Flat-fee access will give way to metered rates. Today's flat rates encourage wasteful activities like newsgroup spams and junk e-mail broadcasts. When our rates are based on what we actually use, the over-taxed data pipes will be cleared for communications that have real value. Some day, bandwidth may be so plentiful it will be free, but not in this century.

Internet Kiosks. Look for these to make their appearance in public places. You'll be able to check on your favorite Web site while waiting for a plane or train. Some will be coin-operated; others will be advertiser sponsored.

New Habits from the Web. Checking traffic-report sites before leaving the house, picking a movie from online movie listings, and viewing the latest weather satellite images at the first sign of rain. ■



CNN, WHICH SET
THE STANDARD FOR
24-HOUR TV NEWS
DELIVERY, HAS
BROUGHT THE SAME
EXCELLENCE TO THE
INTERNET.

file you download with a browser, but it will update your antivirus database automatically from the company's Web site. Early detection not only minimizes the damage on your system when a virus is caught, it helps keep viruses from spreading.

Infoseek (<http://www.infoseek.com>). I'm always amazed at how much better Infoseek is than the other search engines. While other search sites will list a hodgepodge of loosely related matches, Infoseek consistently homes in on the most relevant sites. AltaVista has more sites in its database and will usually return results more quickly than any other search site, but Infoseek is more likely to separate the wheat from the chaff.

CNN Interactive (<http://cnn.com>). While most news organizations have been experimenting with awkward subscription services and slow, graphics-laden pages, CNN has steadily built the best all-around news site on the Net. CNN Interactive is a model of how to do news online right. It's updated frequently throughout the day, the headlines always pop into place in seconds, and links to secondary stories are well-organized. It also

Good, Bad, and Ugly

By Aaron Weiss

With an almost mundane constancy, technological innovation on the Internet has spiraled ever upwards, leaving us, at best, huffing to keep up, at worst, spoiled. Browser combat is fiercer than ever, RealAudio sounds more and more like a real radio, and fluid real-time chats with well-muscled avatars are ever more common. Progress, as our technological society constructs it, is no endangered species, and for that reason, none of the above are singly crucial enough to warrant Best or Worst of the Year status.

Best The Good. In and of itself, the Net has grown sound enough to have a stable core of development that ensures longevity. The hassles of updating one's Web browser every three weeks may be with us for a long time to come, but the Net thrives only as long as its dynamism remains. The strongest potential influences on the future of the Net, then, no longer lie within the Net itself, but on the outside.

Therefore, my choice for Best, as in Most Important Influence on the Net, in 1996 is the Communications Decency Act (CDA) ruling (see News, Sept. *IW*).

"The CDA is patently a government-imposed content-based restriction on speech, and the speech at issue, whether denominated 'indecent' or 'patently offensive,' is entitled to constitutional protection," wrote Chief Justice Dolores K. Sloviter in ruling that the CDA is unconstitutional.

Obviously, the above story (<http://www.eff.org/pub/Censorship/HTML/hot.html#cda-pa>), and those like it (http://www.eff.org/pub/Alerts/Foreign_and_

local), either within the United States or other nations, is not over. How it ultimately turns out remains to be seen, but the CDA ruling is the most significantly positive event for the Net in 1996.

Worst The Bad. While software innovation bustles along, hardware for the Net is falling behind. There are several reasons for this, from technological obstacles to corporate chess games, but the fact remains that software is increasingly hungering for bandwidth that most users' hardware cannot provide.

In short, 28.8 Kbps is not enough for most of the newest and most innovative Net applications like videoconferencing, real-time voice communications, complex Java applets, and even many graphical Web sites.

There has been much chatter about a variety of potential technologies to burst this dam, from cable modems to satellite linkups to newfangled services using existing telephone lines, but none have seen widespread distribution. In some places, such as Germany, the rollout of high-bandwidth services such as ISDN has been aggressive and affordable.

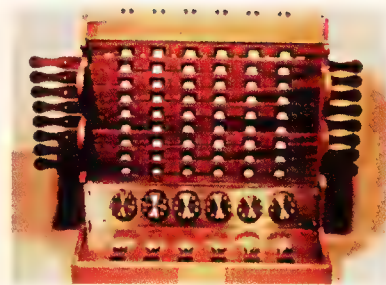
In North America, though, ISDN has been seen by its corporate distributors as a meterable cash jackpot, keeping it out of reach of average Net consumers (http://alumni.caltech.edu/~dank/isdn/isdn_ai.html#TELCO). Now, at press time, word is flooding the streets about a new breed of modems that supposedly can pull data down a regular phone line at 56 Kbps (<http://www.aimnet.com/~jnavas/modem/faq.html#Modem56K>). The hype is there. We'll see.

The Ugly. And, to close, two pet peeves that have reached climactic proportions in my 1996 Net experience:

Overextension of the Word "Web." The new buzzword is not only appearing everywhere, but it's also in places where it's not even appropriate. Quick example: "Web phones" in referring to two-way real-time voice communications applications. These programs, while useful, have little or nothing to do with the World Wide Web.

Follow-up Posts on Usenet Whose Sole Contribution Is to Admit an Inability to Contribute. For example: "I'm wondering if anyone can tell me where I can find a store selling SuperGame in this city?"

Follow-up post: "Sorry, I don't know the answer to your question, but I think MegaGame is better." ■



Courtesy of Computer Museum of America

28.8 Kbps is not
enough for the
newest and
most innovative
applications.



MANY NETIZENS WERE RELIEVED WHEN
FEDERAL JUDGES OVERTURNED THE COMMUNICATIONS
DECENCY ACT IN PHILADELPHIA.

Practical Applications

By Richard Wiggins

Best Pleasant Surprise. The number of information providers offering high-quality information for free via the Web. Examples include Switchboard (<http://www.switchboard.com>) with national, personal, and business telephone directories, and the Edmund's Automobile Buyer's Guides (<http://www.edmunds.com>) with complete information on new car models, including dealer prices.

Automated HTML Validator: Doctor HTML.

If only more site builders validated their HTML and clocked their 28.8-Kbps download times using this tool! It's at <http://www.imagiware.com/RxHTML>.

Airline Web Site: Northwest Airlines (<http://www.nwa.com>).

This has a simple, intuitive Web-forms interface to its flight schedule and pricing database. Northwest deployed this Web site to become one of the first airlines to offer direct sales of e-tickets and last-minute fares available only online.

Search Service: Digital Equipment Corp.'s AltaVista (<http://www.altavista.digital.com>). A secret of AltaVista: The "host:" option. For example, if you want to find all the pages at MIT that relate to Sherry Turkle, you can enter "Sherry Turkle host:mit.edu."

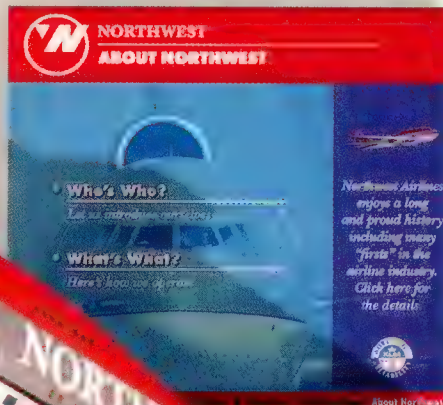
Most Wonderful Service That Vanished: The U.S. Department of Justice's multilanguage translation site. You could paste in text in any of five

languages and click to translate to another. Did some Webmaster's boss declare, "But this has nothing to do with justice!"? The site, formerly at <http://www.ojp.usdoj.gov/trans.htm>, now yields an Error 404 message.

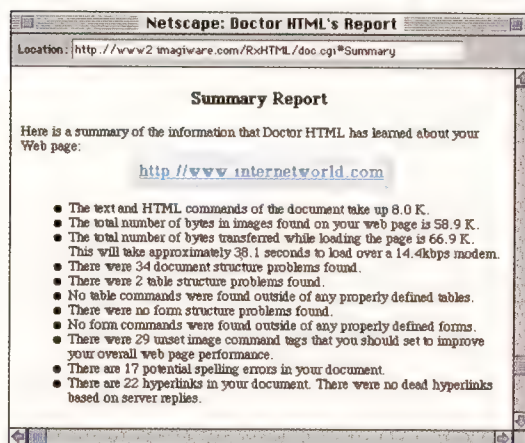
Worst Trend in Search Services: "meta crawlers" that draw upon multiple search tools. These servers exploit the genius of Lycos, Excite, and AltaVista without adding any real value. A single search causes load on multiple engines.

Most Confusing Marketing Move: DEC's renaming a number of nonsearch tools "AltaVista."

Predictions Web-based conferencing will explode. Usenet and mailing-list discussions will move to the Web.



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Microsoft's Internet Explorer will have 50 percent market share by the end of 1997.

Windows NT will begin to displace Unix as the server platform of choice, especially for providing Web gateways to corporate databases.

Disintermediation will be the big trend of 1997 as the direct Internet sales of airline tickets, automobiles, and insurance become popular.

AltaVista and other search services will strain to cope with 150 million URLs and 150 million transactions per day.

The Internet won't crash, but there will be daily traffic jams in popular hot spots.

The war between Microsoft and Netscape will produce incompatible extensions to HTML and Web technologies, and the industry and the public will react by ignoring those proprietary extensions. ■

Market Magic

By David Zgodzinski

You wonder what the five-and-dime store owners used to say when Wal-Mart first began to open its cinder-block shopping palaces. "Those Walton fellas sure are crazy. They'll be broke before Christmas!"

Will there be an online shopping experience? You bet your cybertokens. And for some reason, the business that has taken to the Net the fastest seems to be securities.

Best Financial Site

There is a giant securities warehouse club evolving on the Internet, and it's going to change the way people buy stocks and bonds. There are thousands of Web sites that deal with financial markets. Most of them provide information—quotes, analysis, predictions, and so forth.

These functions were previously performed exclusively by your friendly neighborhood broker.

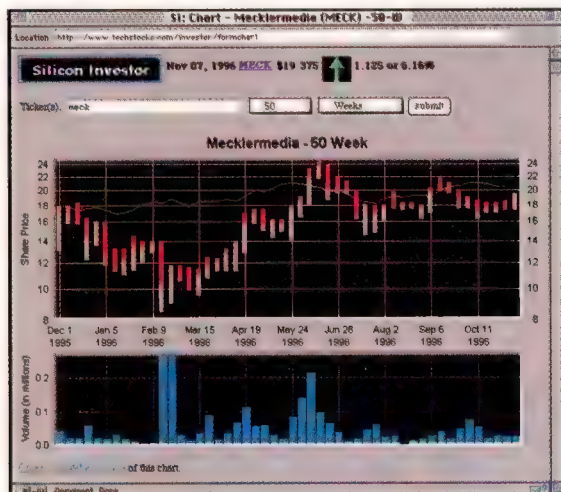
Now you can get powerful market information on the Net, as up to date as what the brokers get, and in many cases for free. You can trade on the Net, buy initial public offerings on the Net, and all this has popped up in less than two years.

The best financial-market Web site is Silicon Investor (<http://www.techstocks.com>). The site is the creation of Brad and Jeff Dryer, two stock-market-crazed brothers in California.

The site has 72,000 registered members and is heavily used. Merrill Lynch is hardly shivering in its boots, but you can do a lot of things at Silicon Investor that you can't do at any broker, or any broker's Web site for that matter. Click on StockTalk, which is the heart of the site. Hundreds of long discussion threads are maintained on all sorts of topics related to technology companies and the stock market. You can read all the comments by other users or add your own.

Reading the StockTalk discussions on a particular company is a great way to get some of the pros and cons on a potential investment. Ask your broker if he can supply you with an analyst's report that recommends the opposite of what he is suggesting. You'll wait a while.

The thing that sets Silicon Investor apart is the accent on the user. Interactivity is everywhere. Leave



SILICON INVESTOR EARNED ITS TOP RANK AMONG FINANCIAL SITES BY OFFERING A BLEND OF STOCK HISTORY CHARTS AND USER OPINIONS.

your two-cents worth on one of the discussion forums. Check in with the Guru and have a laugh looking at his predictions. Add your vote to the Bull/Bear survey. Users can participate at every turn.

There are many excellent Web sites for the financial markets, and more coming all the time. Here are a few more of the better ones:

- Investools at <http://www.investools.com>
- The Motley Fool at <http://fool.web.aol.com>
- StockMaster at <http://www.stockmaster.com>
- Stock Smart at <http://www.stocksmart.com>

But the real action will be in the newsgroups and discussion forums like Silicon Investor. The quality of the posts gets better, and the size of the audience is increasing.

Worst Financial Site Just as there are dozens of great investment Web sites, there are hundreds of truly crummy ones. My pick as the very worst is Controlled Securities Newsletter (formerly the confusing SEC, for Securities Exhibiting Control) at <http://www.prism-services.com/cs>.

The premise is slick. Everybody knows that insider trading and stock manipulation are facts of life, even though they are illegal. The publishers of this newsletter want you to believe that you can learn how to discern what the bad guys are doing and make a pile of dough by buying what they buy.

The Web site is nothing more than an order form for the newsletter, which costs \$59 per year, and you get a free copy of the *Controlled Securities Manipulation Guide!*

Many a scheme to separate you from your money will be floating down the pipe. Using investment information on the Net is a hands-on experience. Oh, and bring along your brain, too. ■

A pleasant surprise: Many providers offer high-quality info for free.



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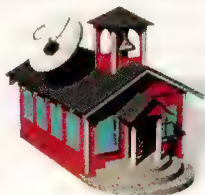
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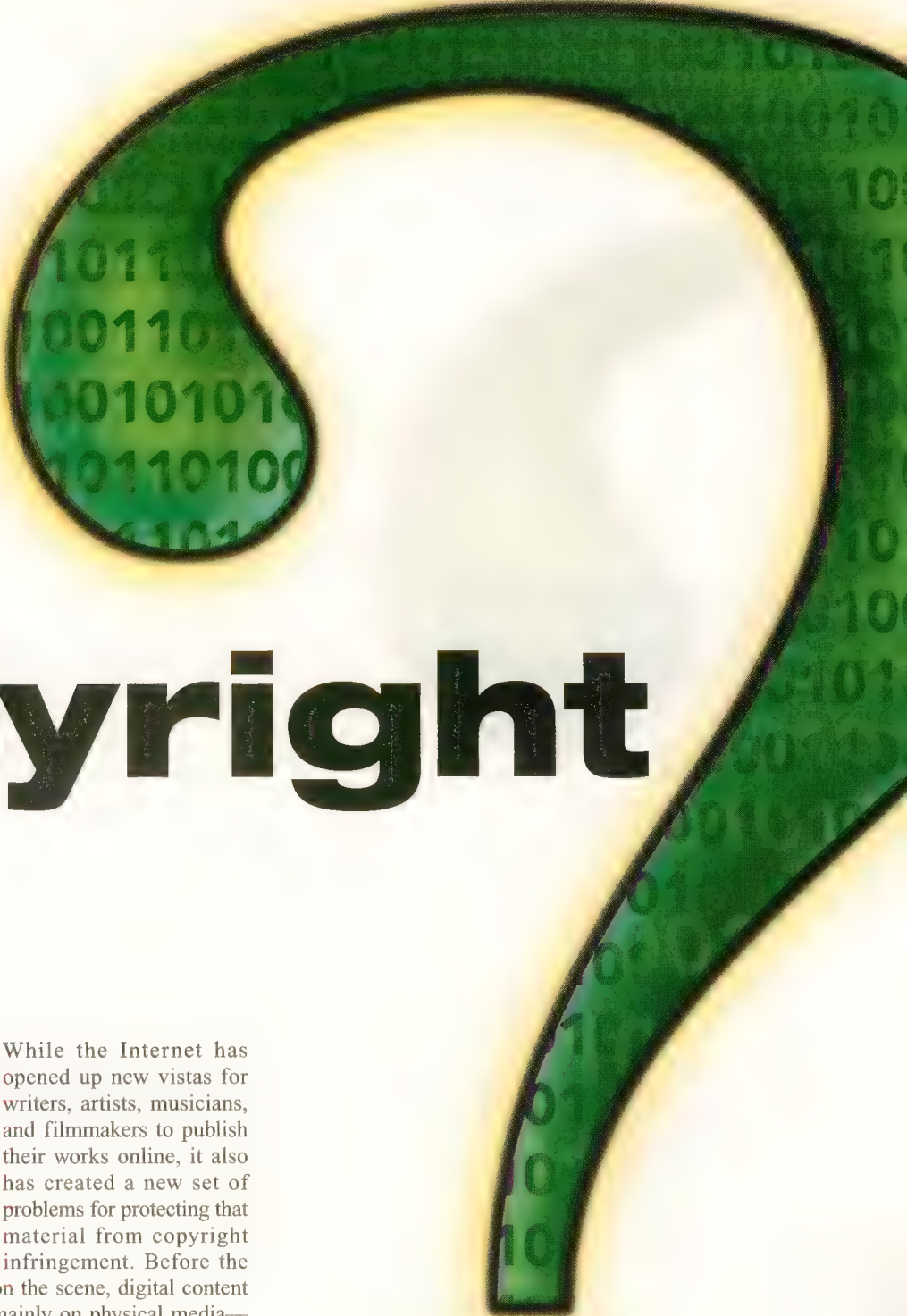


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The Copyright

**By David
Angell
and Eli
Zelkha**

While the Internet has opened up new vistas for writers, artists, musicians, and filmmakers to publish their works online, it also has created a new set of problems for protecting that material from copyright infringement. Before the

Internet burst on the scene, digital content was available mainly on physical media—diskettes or CD-ROMs—and distributed, priced, and sold as physical goods. The Net provides a virtually free distribution system by cutting out the costly distribution channel, where all participants along the way take their respective cuts of the revenue.

And unlike other copy mediums, digital copies retain their original quality with each copy, making it harder to differentiate between a copy and an original. By distributing digital content openly on the Internet, however, providers risk suffering the more dramatic consequence of content piracy.





Making the Net Safe and Profitable for Copyrighted Content

Question

Two approaches are emerging for protecting digital material, an objective that is paramount for content authors, publishers, and packagers who want to capitalize on the Internet. One approach is to enact new legislation, while the other is to employ technology.

The legislative route focuses on passing tougher laws to make copyright infringement more expensive for perpetrators. The Creative Incentive Coalition (CIC, at <http://www.cic.org>), a powerful trade group, is spearheading this approach to content protection. CIC's membership roster reads like a *Who's Who* of media and software giants. Its members include the Association of American Publishers, the Information Industry Association, the Magazine Publishers of America, Microsoft, the Motion Picture Association of America, the Newspaper Association of America, and the Software Publishers Association. The stated mission

of CIC is to ensure strong copyright protection on the Internet for its members.

CIC has been vocal in its support of the NII Copyright Act of 1995, which stalled in Congress this past summer after a series of hearings before the Senate Judiciary Committee. The bill was drafted by the U.S. patents and trademarks agency to update copyright law in the digital age.

There is concern in the Internet community—most notably the Digital Future Coalition (DFC at <http://www.ari.net.dfc>)—that CIC's approach goes too far. The 27-member DFC was founded in the fall of 1995. Members include the Computer and Communications Industry Association, Electronic Frontier Foundation, Electronic Privacy Information Center, National Education Association, and various library associations.

Detractors of the CIC-endorsed legislation say it will create an uncertain environment of subjective, error-prone copyright infringement policing and thus will

stifle one of the most prized attributes of the Internet—the free flow of information. For example, the DFC has urged that Congress specify that storing a document temporarily in RAM doesn't make it an illegal "copy" within the terms of the proposed Copyright Act. Presently, the opposite argument could be made.

Another concern about CIC's approach is that the protection afforded by legal means is only as good as copyright holders' ability to pay for lawyers to protect their interests. The large organizations that make up the CIC membership will be able to use this protection effectively, but the rapidly growing cottage industry of Web-content developers will be left out in the cold.

A more promising alternative for making copyrighted content safe and profitable on the Net is digital-rights management technology. These are software security solutions that track the actions performed on content by an end

user. Digital-rights management systems can embed code that provides proof of ownership and copy protection. The systems can detect when alterations are made, track the movement of content through serial numbers, and meter content so the appropriate royalties can be paid to the information provider.

Digital-rights management systems and micropayment systems have a natural synergy. Micropayment systems are designed for high-volume, low-value transactions, with charges ranging from several cents per transaction to several dollars. The convergence of micropayment, metering, and digital-rights management systems will create a new infrastructure for delivering content on demand. Consumers will be able to download software, reports, and books, and pay for them as they use them.

The systems will comprise a constellation of software and content vending machines on the Internet. Online subscrip-

conditions, and restrictions of use. This control information is available without decrypting the actual document. (See <http://www.cryptolope.ibm.com> for detailed information.)

InterTrust Technologies Corp. (<http://www.intertrust.com>), formerly Electronic Publishing Resources, has fielded a rights-management solution called the InterTrust Commerce Architecture. Similar to IBM's Cryptolope concept, it employs a secure container called a DigiBox that attaches

(formerly the Eclipse Digital Rights Management and Content Metering System), which offers an array of options for securing digital material, tracking its use, and procuring payment. The system is based on a "certificate" model in which usage and pricing terms are assigned to documents and tracked by an InNetwork Web Server database.

The impact of widespread deployment of digital-rights management on the Net is mind-boggling. For starters, there will be little reason to create crippleware versions of products that self-destruct after a preset duration. Broadcast distribution of the complete product will become desirable because theft is dramatically reduced. Digital-rights management also promises to foster the creation of a two-tier approach to delivering content. The first tier will be free content to attract users to a site. The second tier will be metered pay-per-use content.

How much the pay-per-view content model will take away from free content is anybody's guess. The potential danger is that digital-rights management could kill the Net's range of free digital content. On the other hand, securing copyrights while generating revenues for content developers will enable the rapid proliferation of professional-quality content on the Net.

Whatever the outcome of the legislative approach, digital-rights management systems will create an infrastructure for distributing content based on incentive. The adoption of these systems will transform the way content is distributed, consumed, and paid for on the Internet. ■

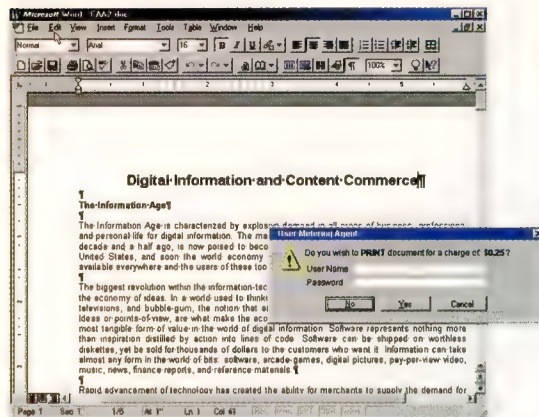
David Angell (dangell@angell.com) is a computer-industry analyst, journalist, and author. Eli Zelkha is vice president of corporate strategy and emerging ventures at Tandem Computers.

Go To: <http://www.meterware.com/account/review.cgi?user=warchibald3234>

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City/State/Zip: Austin, TX 78759

Company	Product	Time	Usage Event	Credit	Change
Ams	AmsWrite 7.0 Upgrade	96Aug27 08:35	cd: Purchase	\$60.00	
A30 System Journal	A30 On-Line	96Aug30 15:08	cd: 1-Month Subscribe	\$8.75	
On-Line Entertainment	Street Machine III	96Aug30 23:12	cd: Single Run	\$0.10	
On-Line Entertainment	Street Machine III	96Aug30 23:22	cd: 2-Hour Subscribe	\$1.30	
DataQuake Market Data	Securities Rpt	96Sep02 10:42	cd: Unlimited View	\$130.00	
DataQuake Market Data	Securities Rpt	96Sep02 14:42	cd: Print	\$250.00	
DataQuake Market Data	Securities Rpt	96Sep02 14:42	cd: Print	\$250.00	
DataQuake Market Data	Securities Rpt	96Sep02 16:42	cd: Embed	\$0.00	
Internet Global	Web Server Hosting	96Sep03 09:00	cd: Monthly Basic	\$15.00	
Electronic Planet	Hypertext Publishing System	96Sep05 13:12	cd: Year Subscribe	\$130.00	



Interval's InNetwork Publishing System's billing statement (left) and the product in use (right).

Digital-rights management systems can embed code that provides proof of ownership and copy protection.

tions become as unnecessary as subscriptions at the corner newsstand: If you have the money, you can take the magazine.

There already are a number of digital-rights management vendors and systems. At this early stage of evolution, however, there are no standards. As digital-rights management matures, standards will be defined by either a standards body or the sheer market power of a single player. The following four companies are the leading players so far in this arena.

IBM (<http://www.ibm.com>) has fielded a rights-management system called infoMarket that is based on a secure-container concept. Called a cryptographic envelope or Cryptolope, IBM's system holds the content as well as the rules for determining permission specified by the content provider, such as price, terms and

usage, payment, and metering rules to digital documents. The solution also consists of the InterTrust Commerce Node, which enables recipients of content to redistribute the material and collect secure payment from other users as sanctioned agents.

Digimarc Corp. (<http://www.digimarc.com>) offers a solution for images called PictureMarc, digital watermarking software that can verify copyright ownership, trigger digital cash meters, track the work's distribution, and more. The company's digital watermarking technology allows the copyright message, for instance, to be hidden in a seemingly random manner in digital data. The imperceptible signature can only be seen with additional computer processing. Recent bundling deals with Adobe and Corel appear to portend a bright future for Digimarc. (See News, p. 24.)

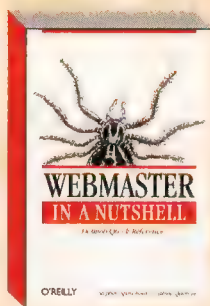
Interval Inc. (<http://www.interval.net>) offers its InNetwork Publishing System

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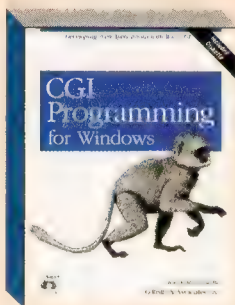
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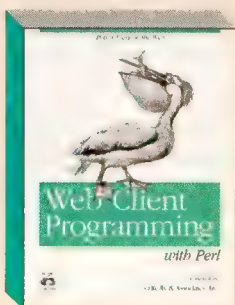
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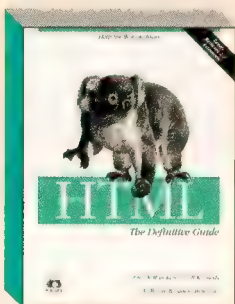
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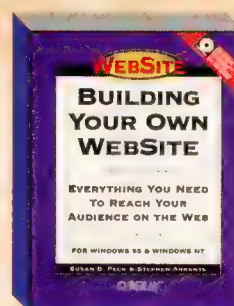
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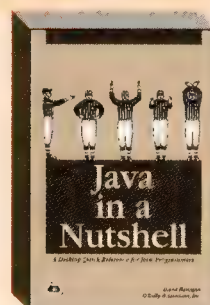
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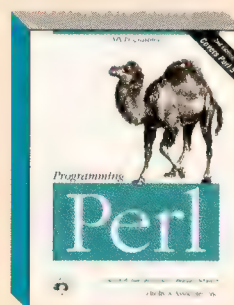
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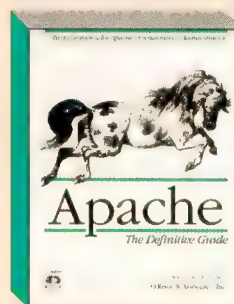
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The Year

By David Appell

A CRISIS IS BREWING among the world's software applications. Some of those responsible for keep-

ing them working have caught its scent and have risen early to meet the challenge. Some are still in bed, one eye on the clock, planning to begin work later, after coffee, maybe after lunch. And some remain sound asleep, blissfully snoring, dreaming of bug-free code and systems that never fail.

The alarm is set for Jan. 1, 2000. The hangover promises to be severe. It is known in the industry as "The Year 2000 Problem," or "Y2K," and it will cost many companies millions of dollars—while making some others rich.

The problem can be stated simply: Because most older software uses only two digits to indicate a year (96 instead of 1996), it cannot handle dates after 1999. The year 2000 registers as the year 1900, which causes obvious problems when computing time-sensitive information like interest rates. This is the stuff that gives your mortgage company nightmares—as well as your insurance company, credit card company, and even the company that bills your telephone calls.

In fact, because many systems must process dates that are years in advance, some have already failed—or could at any moment. Any program that sorts by date, calculates with dates, or displays dates is potentially affected. Worse still, some programs use "00" (and even "99") as a special case, signaling an error or end-of-file condition, risking loss of valuable data.

Your PC is not immune either. If you set your date to 12/31/1999 and the time to 23:59, turn off the power for two minutes, then reboot, the date should be Saturday, Jan. 1, 2000. But don't be surprised if it

isn't. Many DOS systems revert back to 1980. Some older systems do not even allow entry of dates greater than 12/31/99.

Peter de Jager, speaker, consultant, and Y2K provocateur, believes that more than 97 percent of IBM PCs will fail this test. "This is the most important problem I'm aware of," said de Jager, who is the owner of the Internet's Year 2000 mailing list (see sidebar), where an active discussion about the Y2K problem in all its manifestations takes place. The list's 600-plus subscribers range from technical programmers to planners to consultants and vendors who offer software tools to help diagnose and solve application problems. In addition, de Jager has created a Web page with information on the issue (<http://www.year2000.com>). "The size of

the problem is very simple to state: Every line of code needs to be eyeballed in every system that uses dates."

But fixing the problem doesn't just mean fixing your company's system; it also means fixing the code in the machines of every company you do business with, or their bad data could be carried over to your computers, even if yours can handle the later dates.

NO SMALL AFFAIR

CHECKING ALL THAT PROGRAMMING is hardly a simple task for large corporations with mainframe applications in which lines of code are measured in the millions. According to the Gartner Group, a Stamford,





Software Hits the Wall

Conn., consulting firm, the total cost of fixing the Y2K problem will be \$400 billion to \$600 billion. Part of that will go towards replacing hardware that can't be upgraded, such as IBM's S/370 mainframes.

Larry Martin, president of software consulting firm Data Dimensions, estimates that a typical Fortune 500 company will need to spend \$50 million to \$100 million to address software problems arising at the end of the century—about 65 to 90 cents per line of code, on average, although such numbers can vary greatly depending on the application. And those companies just starting to address the issue may already be too late. "That's about 1,000 man-years of work spread over the next three years," Martin said,

"And very few such projects, if any, are successful on that scale."

Indeed, the very size and complexity of computing applications makes Y2K as much a management issue as a programming one. Large mainframe applications, 10 to 20 years old, are referred to by analysts as "legacy systems" because they have outlived generations of programmers. Such systems often have patch upon patch of code, with little accurate documentation. In some cases, the original source code does not match the object in the current production environment or is missing altogether. Howard Rubin, chairman of the Department of Computer Science at Hunter College, conducts a yearly poll of Fortune 1000-size firms and has found that only one in five knows

the size of its software inventory, and only one in 100 has accurate data on the quality of its application code.

"This is not a computer problem," said de Jager. "It's a business problem. Every IS [Information Systems] person on the planet is at least aware of it, and we're smart enough to handle bad data and rewrite the programs." The problem, he says, has been in communicating with management—due, some say, to what's called the "credibility crisis." Corporate executives often experience a disconnection between the seemingly simple problem of adding two digits to a date field and the price tag of \$70 million, when, as de Jager put it, "the only thing they'll get is survival." It's the No. 1 reason why people are not working on the problem, he said.

Spending millions of dollars to fix a problem that can be simply described and that could have been, in retrospect, solved long ago with a little extra planning, is not the type of thing corporations benefit from admitting—an added threat that some refer to as the “denial problem.” The Gartner Group estimates that half of all the companies affected will be unprepared for the Y2K effect on Dec. 31, 1999.

A spokesperson for AT&T said, “We typically plan 15 to 20 years in advance” and that date-related problems in the year 2000 are “totally a nonissue” for the company’s network infrastructure of switching, billing, provisioning, and maintenance systems.

A Sprint spokesperson said the firm was “very aware” of the issue, but despite informal preliminary work believes it is “too early” to discuss specific plans. Bill Kula, a spokesperson for GTE Telephone Operations, the largest local phone company in the United States, said of Y2K, “We recognize it as a potential problem and are conducting analyses to assess our systems and take appropriate measures to eliminate problems from occurring. We’re determining how much will need to be invested, and our goal is a smooth transition to the 21st century.”

Data Dimensions’ Martin believes the impact will be more heavily felt at telecommunications companies, many of which provide Internet backbone service and the lines users need to access their Internet service providers, because of their greater reliance on computer technology, especially in their vast billing systems. In fact, some think that in a few years the “Year 2000 compatibility” might prove to be a marketing advantage for companies that have done the required work and want to attract clients concerned about the safety of their money, credit, or credibility.

HELP... FOR A FEE

A COTTAGE INDUSTRY OF CONSULTING firms has sprung up to help large corporations with the Y2K issue. Companies like Viasoft of Phoenix, Ariz., Reasoning Systems of Palo Alto, Calif., and others offer expertise and software-assessment tools that can scan source code for datelike variable names.

For example, working with Viasoft, Tom Hartmann, project manager for the

Year 2000 Project at Shared Services Center (SSC, an information-services company jointly operated by Capital Blue Cross of Harrisburg, Pa., and Blue Cross of Northeastern Pennsylvania), has identified 90 mainframe-based applications consisting of more than 4,200 programs. Of these, 3,800—or 90 percent—are affected by the Y2K problem, with 79,000 date fields in more than 8.7 million lines of code. SSC expects its mainframe impact planning, analysis, and conversion to take 92 man-years and plans to be finished by September 1998. Among its 1,200 PC users, the company also identified 34,000 files that need to be investigated for potential problems—including Access, Excel, and dBASE files.

At Arizona State University, the fourth largest university in the United States, Kathy Bernhardt of the administrative information technology department is project coordinator of the Millennium Project. Achieving Y2K compatibility for ASU’s Student Information System—a COBOL application on an IBM 3090 that contains records for 350,000 students (past and present) and 8 million lines of code—is expected to take about 25 man-years of effort, requiring the university to hire new programmers and put most new feature development on hold for the next few years.

These numbers are typical, and the advice of most managers already involved in solving the problem is straightforward: Start now!

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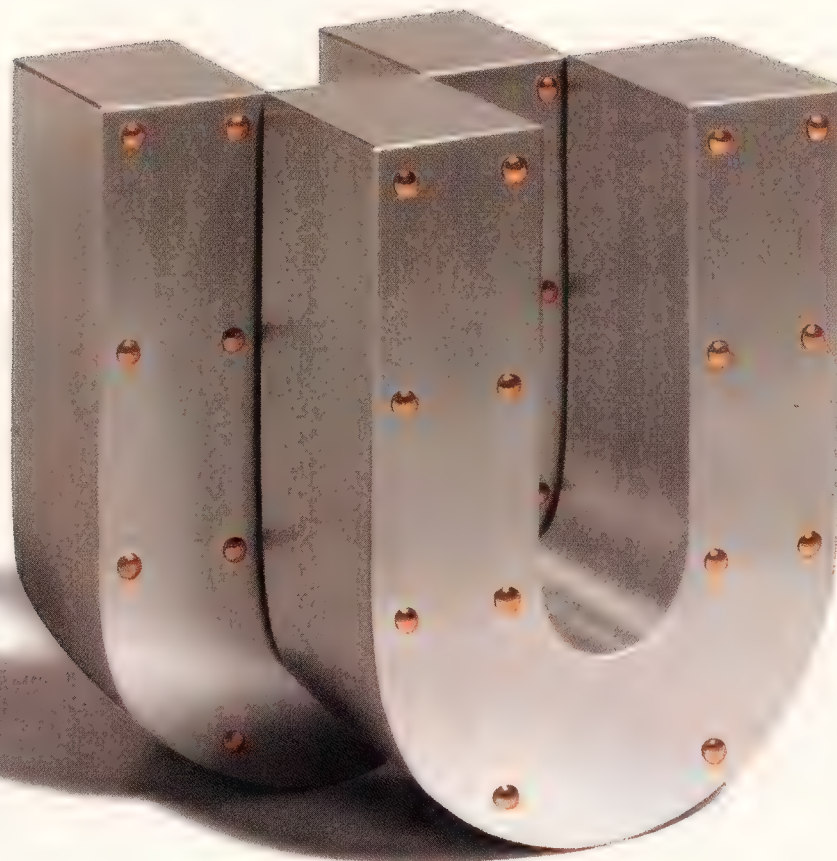
telecommunications companies—is widely assumed to be safe. Joel Snyder, senior partner at Opus One, a telecommunications consulting firm and ISP, sees little impact to Internet communications except in the domain-name system, which often uses date-formatted serial numbers to catalog domain names (like mecklermedia.com). Any domain-name record using a two-digit year will get dropped unless it’s updated to reflect a four-digit date. “It’s a simple change that doesn’t require any software updates,” he said, adding that it’s something he’s been advising his clients to be sure to do.

On the other hand, an ISP is a business like any other, susceptible to

failures of accounting, billing, and other programs. Because of the rapid rate of change faced by ISPs, many of their software systems could change by the year 2000. Gail Williams, a conferencing manager at The Well in San Francisco, said she believes ISP billing systems are the most vulnerable, and that the upcoming transition is “a question of replacing systems and perhaps delaying purchasing new products until they’re year-2000 compatible.”

UNPRECEDENTED PROBLEM

MOST ANALYSTS SEE NO precedents to the Y2K situation. Given our society’s increasing reliance on computing devices and automated communications networks, what are the chances of a meltdown—a cascading



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Year-2000 compatibility will prove to be a marketing advantage.



series of failures that disrupts telephone systems, utility power networks, airlines, railroads, security systems, and elevator-control programs? "No matter how much work you've done," de Jager said, "no matter how meticulous you've been in following date standards, some weird things are going to happen as the data starts filtering through our system—some

of them nothing but humorous glitches, others disastrous. We won't really know until we get there."

It is next to impossible for software analysts, programmers, and operators to anticipate all the problems that might occur—and the consequences of software failures can be severe. Many observers predict that the Y2K problem will create a

great demand over the next few years for programmers in mainframe languages like COBOL, who will be required to do lots of scrambling and put in plenty of overtime. This is, after all, the one deadline that can't be postponed.

"Jerry Weinberg [a well-known computer consultant and author] had the phrase, 'If architects built buildings the way programmers built systems, the first woodpecker would destroy Western civilization,'" de Jager likes to say. "This is our woodpecker." ■

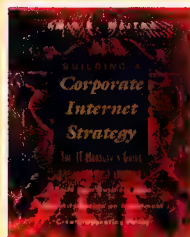
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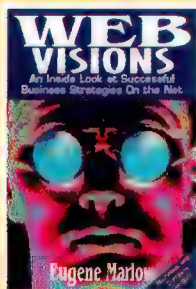
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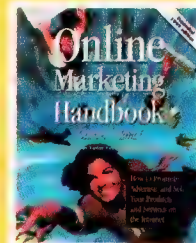


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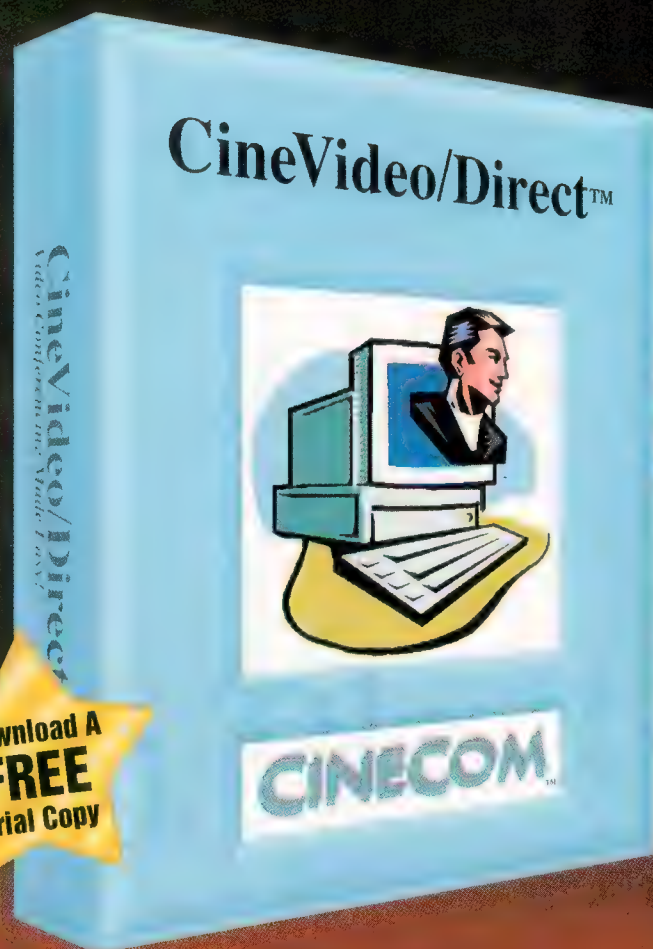


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Eye on the

**Marketing guru Geoffrey
Moore** plumbs the turbulent
currents of the Internet market.

B Y J E F F U B O I S

Geoffrey Moore is president of The Chasm Group (<http://www.chasmgroup.com>), a Silicon Valley-based marketing and consulting firm whose clients include Bay Networks, Intel, Hewlett-Packard, Netscape, Next, Oracle, and Sun. A former partner and principal at Regis McKenna, Moore is the author of *Crossing the Chasm: Marketing and Selling Technology Products to Mainstream Customers* (Harper Collins, 1991) and *Inside the Tornado: Marketing Strategies from Silicon Valley's Cutting Edge* (Harper Collins, 1995), both of which have become marketing bibles at many Internet startups and other Silicon Valley firms.

Central to Moore's model of technology adoption is a progression of customer types, associated buying habits, and markets that begins with early adopters and visionaries and then (for successful companies) moves

Geoffrey Moore: "I don't think Netscape's playing the game smart enough."

Storm



Eye on the Storm

through a niche-oriented “crossing the chasm” phase and into the mass-marketing hypergrowth of widespread adoption. E-mail, for example, has made it over the chasm to the mass market, while intranet publishing is still a niche phenomenon, and electronic-commerce has yet to make the mainstream.

Here Moore offers his perspective on the capitalization of high-tech companies; strategic problems at Netscape, Apple, Oracle, and in the ISP industry; Microsoft and antitrust issues; real-time media on the Net; advertising; and electronic commerce.



INTERNET WORLD: *Among the Internet companies and technologies, who is where in the market cycle you describe? Who's getting ready to cross the chasm?*

GEOFFREY MOORE: There are Internet products along the entire life cycle. Working back to front, Unix, Internet e-mail, Eudora, and such are well established on Main Street. Moving backwards to the hypergrowth stage, browsers are still in hypergrowth with the Netscape-Microsoft war, and ISPs are in hypergrowth because of the number of connections that are being added to the Net. And the Internet is clearly driving hypergrowth with Cisco and other folks who are supplying core infrastructure. I think that might be all the honest-to-God tornado stuff.

In terms of the niche markets from which people are crossing the chasm, it feels to me like this intranet thing is one. Conventional wisdom has been intranet now, full Internet later. I think that's a somewhat simplistic thought and that a better way to look at the intranet is that it's a sort of early pilot of information sharing, but it will very quickly become what I would call customer service, or inter-intra. In other words, there's a lot of communication between supply-chain partners and other divisions of corporations. Sometimes they are inter-company, so “intranet” may be a bit of a misnomer. The key point is that it's not transactions—not e-commerce. It's information sharing, so it's e-mail plus significant downloading of information.

IW: *What about electronic commerce?*

MOORE: E-commerce is still in the early market stage, although it's going to become a tornado a whole lot faster than most people are planning for, because the leverage from electronic commerce is so high. A quickly developing form of electronic commerce is unbrokered transactions—those in which you are willing to put your credit card num-

ber onto the Net and aren't worried about having a broker. Creating a formal brokered infrastructure will take a little bit longer.

The leverage from this is so phenomenal for certain kinds of transactions. The obvious ones are airlines, hotels, and rental cars. I think this is going to develop very fast, and, as a byproduct, will drive banking transactions to the Net. Banking was never compelling enough by itself to get people to use the Net, but if you're already using it for your airline tickets, well, why not the bank balance, too?

So I really think the transactions market will evolve into several levels of complexity and security—a spectrum of light to heavy, where superheavy will stay on proprietary EDI [electronic data interchange] private networks. But I think that

between the mission-critical, highly secure, proprietary EDI level and Amazon.com [an online bookstore] at the light end, there are going to be two or three interesting staging areas. Companies that figure those out will be able to secure an advantageous position in the market. If they can model how the market will evolve, they can get there first and do some interesting things.

IW: *Any other hot areas? Real-time media? Java?*

MOORE: By admission, I am a late adopter and a curmudgeon, so you should take the following with a grain of salt. I don't like real-time on the Web, so I don't like phone calls, I don't like video, and I don't like streaming audio. Of course, just because I don't like them doesn't mean consumers won't, but I don't think the Web lends itself to them. And I think they will screw it up. They will saturate the Web and create all kinds of problems. So I think we'll move fairly quickly to some kind of pay-as-you-go brokered settlement for traffic, which will also discriminate against real-time.

As for Java, I'm not a great lover of Java as an animation technique. As an infrastructure I think Java is fine, but the screen trash, Shockwave, and that stuff, no. I really love the page metaphor. I'm a literary kind of guy, and I love the notion of pages. To me that's a really wonderful unit of thought and experience.

IW: *You don't see dynamic pages or Web sites as applications? A unique page for every visitor every time?*

MOORE: Yes, I definitely do, but I don't want to have to include 3-D or sound effects. If what you mean by dynamic pages is that I can see data changing dynamically—such as stock information or whatever—I think that's really powerful. I see those as having a transaction-processing flavor to them. I think the browser is going to be a great client, particularly for consumer transactions and also for what I would call inquiry transactions—like FedEx tracking.

Those are extremely powerful uses and will drive a ton of traffic. But I'm skeptical about virtual reality and that kind of stuff on the Web. The other part of it is, I doubt that time-based interactions will work—like television and radio or any data type where time is an important part of the message, so you can't interrupt it without getting a jerky experience.

IW: *Even on something like international telephony?*

MOORE: Ah, that's a good one. International telephony is where I think there will be temporary attempts to get around regulatory inefficiencies that are deliberately introduced into the communications systems. So will there be cheapo phone service into Europe? You bet. And as soon as the free market responds by freeing up those artificial protectionist pricing structures, Net-based telephony becomes a lot less interesting.

IW: *What do you think about the Microsoft-Netscape battle? Is that one that end users win, as opposed to either of those two companies?*

MOORE: My position on this from Day One was that I don't think the world needs another market dominated by Microsoft. I have enormous respect for the company, but I really get nervous about markets where one vendor has such power. So I've been really rooting for Netscape. I wish I could say I think Netscape is winning, but it doesn't

look that way right now. True, they have 80 percent market share, so why isn't it working? What's happening is that Netscape isn't partnering the right way.

Microsoft, of course, not only is highly experienced in partnering, it can offer plenty on the carrot side, and it has some pretty nasty sticks. It has been playing the partnering game for 10 years and it's lethal at it. Meanwhile, Netscape is making mistakes and alienating the very people it should be working with.

IW: *What should Netscape do?*

MOORE: There are a lot of problems. First of all, it's a very young company playing against a very experienced opponent. It's using the wrong business model. It's taking money from partners, and in a market-share war you must never do that. The only time you can take money from partners is when they don't have any place else to go. When you're in a battle with somebody like Microsoft, you work with a partner to get the money from the customer; you don't take the money from your partners.

AT&T's WorldNet announcement [that WorldNet would use Microsoft's Internet Explorer as the default browser] is a perfect example—and just one in a series. Netscape's got to figure out a way to fight these battles harder. It doesn't have to win every one of them. It still has a ton of consumers, and it's a great brand.

There's a lot of value in its brand awareness. It's doing wonderful things with leading-edge Web sites, all kinds of cool stuff. It's not a product problem, it's a marketplace power-dynamics problem. I don't think Netscape's playing the game smart enough, and it makes me mad because I want them to win. Or rather, I don't want them to lose.

IW: *It's better if neither company wins, rather than users win...*

MOORE: Yes, but what we'll all end up doing if Netscape doesn't play better is we will have instantiated the Microsoft Network. We'll just call it the Internet [laughter].

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Eye on the Storm

IW: *How about Java vs. ActiveX?*

MOORE: With ActiveX, I think Microsoft did it just right. They play this game so well, it's just infuriating to play against them. ActiveX brings all of that OLE [object linking and embedding] community forward and opens it up to the Web. Arrayed against them is the Java and CORBA crowd. They're saying, essentially, "Guys, you've been telling us for the last 10 years that you are 'open systems' and you would get it together, but you haven't, and we don't believe you ever will."

"I don't think what the world needs is another market dominated by Microsoft."

So the marketplace now faces a choice between a known authoritarian vendor in Microsoft and this wispy, sort-of-open-systems, it-will-all-work-together ecology metaphor. If they did it better you'd say, "Yeah, let's go!" But they're just not doing it well enough. The game is not over by any means, but the fact that Microsoft was able to bring such competitive firepower to bear so fast . . .

I have a friend who runs Summit Strategies, and he nailed this thing early. Way back in January, a year ago, he said that Microsoft had hijacked the Internet. I didn't see it that way at the time, but now it looks to me like that script is being played out just the way he wrote it.

IW: *Are there market segments that you see emerging, or products or categories, that are going to be big in the next year?*

MOORE: My feeling is that the infrastructure category in general will get consolidated painfully quickly. We saw this with the Yahoo-Excite-Lycos phenomenon, where the market cap went up and then it slammed right down. I think the problem is that most people see the infrastructure as a game of a few players doing a fair amount of stuff under the covers; there's not a lot of long-

term room for niche players in a system that is going to be like the telephone system.

Don't play it like the classic software company; don't play it like a tools company; don't play it like a database company. Play it as a services transaction. Realize that you're going to be in a services business. Realize that services businesses are going to be dominated by a few large-scale enterprises. Figure out a way to outsource that service from them. Show up and say, "Let us do this thing for you under *your* brand name and we'll just be a sort of secondary service supplier into your operation."

IW: *Can you give me an example of what you're talking about here?*

MOORE: Think of the airlines, and look at the airline food business, right?

IW: *Marriott.*

MOORE: Marriott's big. I could go to Marriott and say, "Let me do Monterey and Santa Rosa and whatever—and by the way, I've invented this really cool

food cart that takes 15 minutes off of every airline refill, but rather than me trying to set up shop with that, why don't I license you my food cart?" In other words, don't try to compete to create your own identity in the marketplace. I don't think it's going to work. I do think it would work with things that show to the end-user. But the navigational tools . . . nobody wants a navigational tool, they want to be navigated.

IW: *But some of that is going to be built right into the browser. For example, Infoseek has a client that tweaks the buttons on Navigator and gives you a little search bar up at the top. Most of the search engines are coming out with bits of client software. Don't you think some of those are going to have identity?*

MOORE: I would say that the war between Netscape Navigator and Microsoft Internet Explorer is the war for owning the entire rights to the personality. Now, if you go down to an application level, I think applications have personality, but I don't think this thing [the browser] is going to be perceived as an application. I don't think people perceive navigation as an application.

IW: *So it's going to be something that's built into other things?*

MOORE: I think so. It's the classic middleware problem. The way you secure your fate in a market is to make sure you're very close either to the customer, who has the money, or to the technology, which controls the future of the architecture. So if you're at the Intel end of the value chain in the PC market or the customer-facing end, like CompUSA, there's a lot of power. But as you get toward the middle, it's harder and harder to get fair value back for the value you put in. You're just the guy in the middle. And sooner or later you get what we call disintermediated—when somebody figures out a way to swap you out.

IW: *What should these companies do?*

MOORE: Just align with one end or the other, early.

IW: *Of course, that's going to be hard to do if Microsoft owns . . .*

MOORE: [laughter] Yes, that's why you'd wish that this wasn't yet another dominated market. There are a lot of books out right now that model markets as biological ecosystems. In an ecosystem, when a single plant or animal form dominates, it's bad for the overall system. You can't ask that plant or animal not to spread, but it's still not good for the ecosystem.

IW: *Do you think the Justice Department is failing to do what it should?*

MOORE: Well that's like the question of whether you manage ecosystems; what happens when you ask the gardener to intervene? I think anybody who is savvy about this market knows that Microsoft is getting away with stuff it probably shouldn't get away with.

Having said that, I have zero confidence in the Justice Department to intervene in ways that make any sense. If I were Netscape I would definitely do what I am doing, and I'd expect the Justice Department to intervene, and I'd expect Microsoft to pull in its horns a little bit. That's a dance that monopolistic companies do. I don't have any problem with it, but I wouldn't have any hope that it will be anything more.

IW: *I wondered if it was time to short Netscape when it went to the Justice*

Department hoping for help because that seems like such a hopeless strategy.

MOORE: I don't really think that is its strategy. I do think it's a card Netscape felt it had to play. What's interesting is the difference in the reaction between when Netscape played the card and when the rest of Silicon Valley played the card a year and a half ago in relation to the Microsoft Network. When it was played that time, I think people were on the side of those writing the letters to the Justice Department. I think part of what's going on now is the market itself is saying, "Hey, Microsoft played more or less fair and square and you guys are whining."

I think the case is more ambiguous than that, but what's interesting is that Netscape didn't get the rallying of emotional support that was its God-given right to manipulate. If you ever had a PR situation where you could present yourself as Luke Skywalker—you know, Luke "Marc Andreesson" Skywalker, Obi Wan "Jim Clark" Kenobi, and Han "James Barksdale" Solo against Darth Vader—this was it! I mean, the script was completely written for

them, and they've managed to blow it. PR—that's the other place where Netscape hasn't done well. It hasn't done well in partnering, and it really hasn't done well in PR. And come to think of it, it's inexcusable that it should have done as badly as it has.

IW: *Who do you count as walking dead these days?*

MOORE: Certainly not anybody we've just been talking about. That's all live stuff. And maybe walking dead isn't the right concept. Let me give you an example of a company I thought at one point was dead, but actually has got a heck of a business. What it did was turn lemons into lemonade: Spyglass had the Mosaic license, and when Netscape smoked through with Navigator, you said, "Well, there's roadkill," but that's not what's happened. Spyglass pulled back and did something like the microprocessor guys did when they couldn't beat Intel on the PC. The microprocessor guys went after embedded control, and so has Spyglass.

So now Spyglass has all of the Internet OS [operating system] work that's focused

on the peripheral devices—the handheld devices, the wireless devices, the factory-floor machines—and it's sitting pretty. I think this Internet market is so vibrant right now that it's like playing a computer game: If you get shot, just get up and get a new life. Of course, not all companies can do this. For organizations with the kind of structure of an IBM or any other very large corporation, it's awfully hard for them to play this game. They just aren't nimble enough to move this fast.

IW: *Even banks?*

MOORE: Banks are an interesting case. One comment I've heard is that it's obvious that people need banking but it's not obvious that they need banks. I think they do need banks, but I think what's going to happen is that most of the banks are going to make the classic mistake where you try to replicate the old business model in the new paradigm. If you went from a horse to a car, you would try to find where to put the oats, that kind of thing. Well, I think banks are going to try to replicate their existing busi-

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Eye on the Storm

ness practices in an online environment. I think they will miss the point.

IW: *There was a good response to similar comments from Bill Gates about banks being dinosaurs: that some dinosaurs run real fast and bite the hell out of you.*

MOORE: [laughter] I like that. But the truth of the matter is, there's a lot to know about money that most people don't know and banks probably do. So they have deep knowledge bases. The thing that stops large institutions from changing is that as they grow they institutionalize a lot of procedures, and a whole lot of knowledge in their organization becomes formalized as business procedures. Business procedures build up into a bureaucratic structure, and then the world changes and the institution has no easy way to deconstruct those procedures and generate new ones, so they tend to die; that's the dinosaur problem.

People in large institutions know this and they set about to deconstruct and recapture the knowledge and get it deployed in a more aggressive, nimble way.

IW: *We didn't actually say who was walking dead here. Can we go back to that?*

MOORE: Give me some candidates, and I'll tell you if I think they're walking dead.

IW: *Database companies, other than Oracle.*

MOORE: Well that's interesting. And why make Oracle an exception? Most database companies feel the database itself is becoming increasingly commoditized. So then the question becomes, Do they get commoditized at the level of the minicomputer? Now here comes Microsoft's BackOffice with SQL Server and it's not obvious why that can't take over the world after NT takes over the world. There's no obvious barrier to entry. There are barriers of complexity, but the problem with that is that it's a game where I give away the low end but I keep the high end, and the high end shrinks every year.

Oracle has got a really strong franchise, but structurally you still have to ask, "So Mr. Ellison, exactly where is the wall between you and Microsoft, and what is going to sustain that wall?" I don't see where the line in

the sand is, and I don't see any troops waiting to defend that line. Because if you look at Oracle, it has fabulous direct-sales capabilities, but it has very weak indirect-sales capabilities. It's working on that, but it's not in the field yet, and Microsoft has just the opposite. So here are all the Microsoft indirect channels gradually encroaching on the Oracle franchise. It reminds me of Rome and the barbarians.

IW: *So that goes double for everybody that's not Oracle?*

MOORE: Well, the interesting thing here is that if you're not Oracle, it's actually easier to change. You start thinking in more creative ways sooner because you feel the problem sooner. It is no accident that Informix is Netscape's No. 1 partner on the Internet. The good news about this industry is the net wealth in the industry increases every year. The distribution of that wealth—which companies it's in—changes. Right now, Cisco is exploding with wealth. It'll do that for a while and maybe something else will happen and somebody else will do it for a while.

But when your company becomes road-kill, the truth is everybody in your company goes and gets another job where they get a raise. It's tough if you're a customer of a company that didn't win because you've got to say, "Oh God, I've got to convert to the new." I'm sitting here right now with my Macintosh, which I dearly love.

IW: *That was going to be my next question. Is Apple going to live or die?*

MOORE: I want Apple to live so badly I can't stand it, but right now it's giving its customers and partners very little cause for optimism. At a time in the market when it was incredibly important for it to be communicating, Apple holed up in order to fix things. It has to reframe itself in a way that lets the market see its future—and right now the market can't. What people can't see is why the universe is going to have an Apple computer in the year 2005. People need to be able to envision that. And Apple's not working that issue at all.

IW: *Is there anybody who is not ultimately going to fall into the trap of competing with Microsoft?*

MOORE: Well, I think Cisco.

IW: *So the hardware vendors are OK?*

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- ▶ Alex. Brown

MOORE: Well, Cisco is also good software. There is a fight coming up. Get *Upside* magazine or *Red Herring* and just read the market cap of every company, and what you'll see is the market cap is the public statement of how good a company's marketing is, of how much power it has accumulated in the marketplace.

The No. 1 market cap in high-tech is Microsoft. The No. 2 market cap is Intel. The No. 3 market cap in high-tech is a tie, I think, between IBM and Hewlett-Packard. The No. 5 cap is Cisco. If you look at the revenues, it's hysterical because IBM has \$72 billion in revenue and about a \$55 billion market cap. And Cisco has about a \$45 billion market cap and I think it has about \$4 billion in revenue. That means the market sees a heck of a future for Cisco. The problem, and this is a Cisco-Microsoft conflict, is that Cisco wants to be the network.

Microsoft can't let that go on forever. But I don't know how it's going to play against them because these guys are very very good, and it's been a hardware-dominated play until now. Maybe they can split the levels of the ISO model, but my guess is sooner or later they are going to fight over some layer of the ISO model.

IW: What about Internet advertising?

MOORE: I think the Web is a poor medium for advertising. Today what advertisers sell their clients is essentially impressions in prospective customers' minds. But that's not what you want to buy from somebody on the Web.

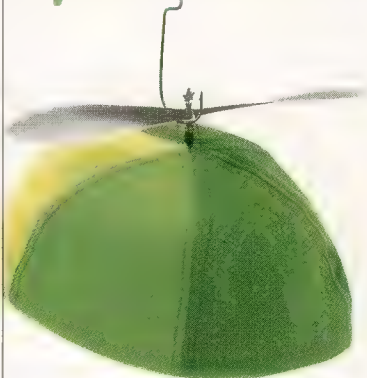
IW: You mean that advertisers want to buy a completed transaction?

MOORE: At least a profile of demographically qualified customers. The advertising industry has lots of resources; it just has to reconfigure its business model to say, "We're not selling ads, we're selling qualified prospects." It can then use its creative talent to reconfigure the business model.

The big winners will be the first ones who say, "We're not selling you air, we're not selling you hope, we're selling you qualified prospects, and we'll set a market price for qualified prospects. How many do you want to buy?" If they do a good job of qualifying them, they'll charge you more. ■

Jeff Ubois (jubois@netcom.com) writes about the Internet and other topics for the trade, business, and popular press.

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CIRCLE NUMBER 111



SIX SITES THAT RATE THE WEB

Critic's Choice

Containing more than 50 million pages and counting, the Web is clearly in need of a good guide. Vast, easy-to-use libraries of valuable information are now available online, but they're lost in a quagmire of trivia, misinformation, and self-promotion. Infoseek, AltaVista, and other online search engines have attempted to solve the problem by compiling massive indexes cataloging as much of the Web as they can handle. But sifting the Web using the search engines can be an enormous job in itself. A Web-wide search on a simple query can easily generate tens of thousands of responses, and it might take the better part of a day to sort through the links before you locate any useful information.

Yahoo and other directories are a bit more helpful when you're looking for information in a specific, well-defined category. Because they organize sites by subject, you can get an overview of the Web pages available on the topic of your choice. But in a popular category, you'll still have hundreds of sites to check out—after you've slowly slogged your way through a huge hierarchy of subcategories. And even when you find a list of sites that

sound relevant, you have no way to determine which ones are worth a visit and which are a waste of time.

Separating the wheat from the chaff at this level can be a time-consuming chore, even if you have a fast connection. Over a dial-up line, it's likely to take so much time you'll give up after a short search, probably missing the best sites altogether. And as the Web continues to expand, the problem will only get worse.

RATERS TO THE RESCUE

Among the latest tools for taming the Web are a new breed of best-of-the-Web services whose bold, self-appointed mission is to guide you to the good stuff

**Cybercritic
services rate
Web sites. Which
is best? IW Labs
rates the raters.**

BY GUS VENDITTO

by reviewing and rating Web sites—in some cases, tens of thousands of them. Even as you read this, stalwart staffs of reviewers are picking their way through the millions of available pages, recording the best addresses and organizing them by subject. If the raters do their

jobs correctly, you'll be able to spend far less of your online time sifting through half-baked sites and more time viewing pages that deliver at least a modicum of quality.

Clearly, no one can produce a definitive best-of-the-Web list with any claim of authority. Even professional critics often disagree on the best films or music. But the task of creating a comprehensive Web rating is even more difficult. Due to its sheer size, the Web defies all traditional attempts at categorization. Moreover, many Web sites aim to cut across traditional boundaries. And standards of quality are far from clear. Plugged-in 20-year-old programmers tend to have different tastes and expectations than staid 50-year-old executives.

Of course, setting yourself up as a self-anointed Web critic isn't hard. Anyone with a Web page and the requisite ego can take a stab at it. In fact, countless individuals offer lists of links as their personal best-of-the-Web picks. The six sites we reviewed here, however, employ teams of professional reviewers (in some cases, experts on the subjects at hand) and purport to cover the entire Web. They've made an effort to organize sites into a broad range of categories that cover major fields of interest.

In reviewing these site-rating services, IW Labs looked mainly at the quality of the overall design and the effectiveness of the reviews in helping you make your own decisions about what to look at directly. We also took stock of the site's general tenor and personality.

DIFFERENT STROKES . . .

The six site-rating services we reviewed take surprisingly different approaches to their seemingly straightforward job. Most provided some type of numeric rating, a basic four-star system being the most popular. Yahoo Internet Life achieves more granularity by awarding half-stars; Excite uses sprightly Xs rather than stars. Lycos uses a 50-point scale compiled from three subcategories, while C|net uses no rating system.

All six sites provide links to the sites they review so you can use the ratings as a jumping-off point for your own browsing and evaluating.

In testing the site raters, we found that a site's design and information architectures are key determinants of its usefulness. At some sites, menu structures were confusing, offering category choices that seemed, in some instances, too broad, in others, hair-splittingly narrow. In either case, the result tended to be extended searching.

In some cases, a rater's interface forced us to wade through cumbersome lists of reviews displayed 10 summaries at a time (similar to the technique used by several of the search engines). This approach proved frustrating because we couldn't quickly compare different sites. Most of the rating services, on the other hand, provided long, easily navigable lists.

We're happy to report that several of the sites benefit from excellent overall designs that firmly support their missions as handy guides to the best of the Web. This doesn't mean you'll never disagree with the opinions or ratings you find there—any more than you're likely to agree with all the opinions of any critic. But if you take the time to familiarize yourself with one or more of these six site raters and the unique perspectives you'll find there, you're sure to find yourself spending less time searching and more time reaping the benefits of your Web browsing.

THE REVIEWS

C|NET BEST OF THE WEB

<http://www.cnet.com/Content/Reviews/Bestofweb>

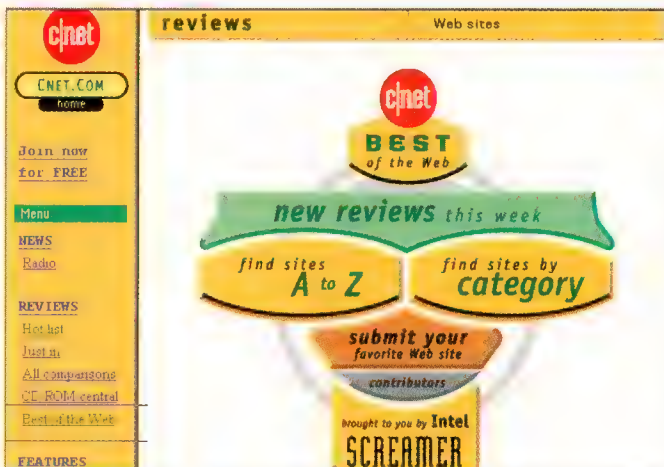
**BRASH,
AMUSING,
QUIRKY**

C|net's Best of the Web feature doesn't claim to be comprehensive. Instead, C|net steers straight for the fast lane of Web culture and limits itself to sites that cultivate hipness above all. Five new reviews are posted each week and added to the archives. You can view a list of sites alphabetically or by category. C|net's categories sound as broad as everyone else's—art, business, and health are all covered—but the actual sites listed within each category reveal a fascination with the fringes and a certain disdain for the cultural mainstream.

For example, in the Arts section you won't find the Louvre or most of the other great museums of the world; only one, the Whitney Museum of American Art, is reviewed. Instead of the sites devoted to fine arts and classic performance found in other best-of archives, C|net features reviews of Art Crimes, a site that celebrates graffiti, and Gallery of Decay, where images of rotting vegetation are exalted (according to C|net, the Gallery of Decay is "awesome . . . guaranteed to make you gag").

Likewise, in the Health listings "The Ebola (Virus) Home Page," "The Depression FAQ," and "Veggies Unite" ("how to make tofu tasty") somehow made it into the top 10.

C|net doesn't offer ratings, rather each site is reviewed in a highly personal style by a staff of writers with attitude who aren't shy about expressing themselves. For example, The White House site is described as "lame," while Cigar World is "the online outpost for those who think Castro is just the guy standing between them and some really great Havanas." And in explaining why he likes NewtWatch, a site dedicated to monitoring the Georgia Republican,



C|net's Best of the Web features strong opinions from its reviewers.



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BOOK REVIEWS

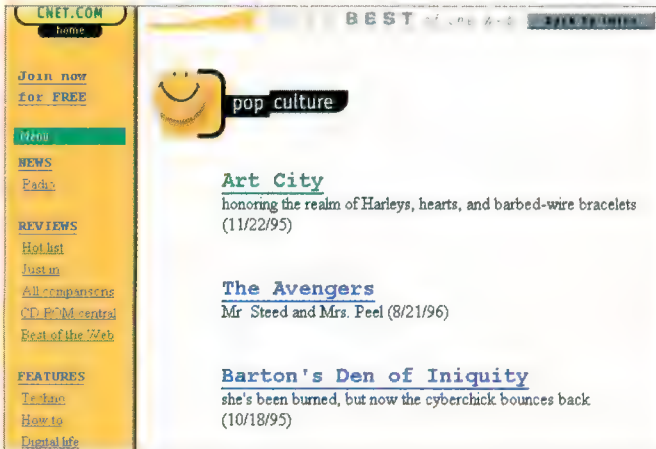
NET'S ENTERTAINMENT

<http://netday.iworld.com/poweruser>



C|net's reviewer gushes with affection, exclaiming, "Cheap thrills and petty jokes aren't pretty, but boy do they feel good!"

As long as you're not expecting to find the best of the Web in a conventional sense, a visit here can be entertaining. Those aspiring to a certain shade of ultracool status will find it *de rigueur*.



You can browse through C|net's reviews alphabetically or by category.

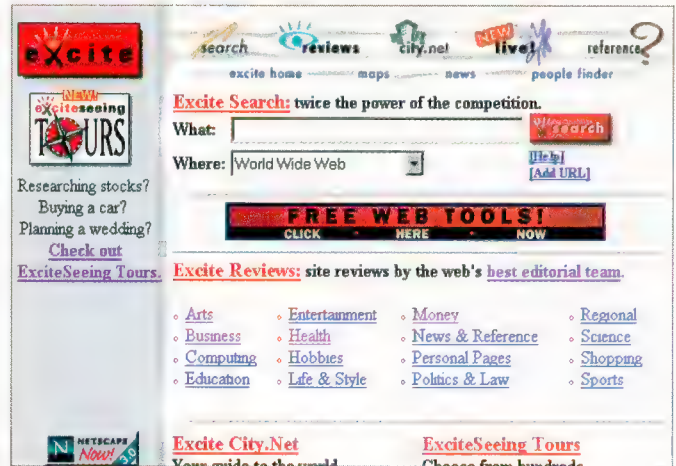
EXCITE REVIEWS

<http://www.excite.com/Reviews>

**EXTENSIVE
BUT NOT
EXCITING**

Excite is best known as a Web-wide search engine that lets you navigate through the contents of millions of individual pages. Excite Reviews complements that service with a database of more than 60,000 Web site reviews, which Excite claims is the largest collection of Web site ratings available. Its combination of search engine and reviews is similar to that of Lycos. Finding the reviews on Excite is a little more convenient because they're right on the front page, whereas on Lycos you need to select a link to find the reviews.

Excite's reviews aim for a casual style while conveying the essence of each site. They don't provide specific details on the type of information you'll find at a site; you'll probably find either that you more or less agree with the reviewer's judgments or that the information is too limited to be useful. In general, we found the reviewers to be accurate but felt they placed too much emphasis on a site's appearance at the expense of rating the quality of information. Unfortunately, we also found many instances of typos and fragmented sentences in the reviews.



Excite Reviews appear just below Excite's Web search engine.

Excite's reviews are the shortest of any of the best-of-the-Web sites we looked at. On average, each review is about two sentences long (about 40 words), roughly half the norm.

Based on an X to XXXX rating system, Excite Reviews are easy to navigate because all the reviews in a category are displayed together, sorted by rating and alphabetically within each rating group (XXXX sites A to Z, XXX sites A to Z, and so on). You simply scroll down the list until you find the sites that are most appealing. Also, the category names are clear and leave little doubt about where to look for specific types of information.

On the first page for each major review category, Excite Reviews publishes a weekly column from the appropriate member of its team of reviewers. Called WebWatch, these don't include ratings or even review-style coverage of the new sites. Each column focuses on a specific topic, but they're so narrow or off-beat it's hard to see the appeal. On Columbus Day, for example, the Personal Pages column featured home pages of Italian-Americans. And during the week when baseball's National League Championship Series was underway, the Sports column turned the spotlight on arthroscopic surgery. The reason: Ken Caminiti, the National League's leading MVP candidate, was being treated for a torn rotator cuff. Rather than sports action, readers were treated to a tour that included the hospital where the surgery took place and an anatomical illustration of the human shoulder.

Excite also offers ExciteSeeing Tours, columns that tackle specific tasks like shopping for a car or planning a wedding. These tours guide you to and through the best pages in these subject areas with site descriptions and clickable links. It's a good concept that's well executed.

Overall, Excite's individual reviews are so short they may leave you hungry for more detail. But if you're just looking

HOW THEY RATE

	C net Best of the Web	Excite Reviews	Lycos Top 5% Sites	Magellan Internet Guide	NetGuide Live's Best of the Web	Yahoo Internet Life Reviews
Browsability	Good	Very good	Very good	Poor	Good	Very good
Attitude	Highly subjective	Subjective	Objective	Objective	Subjective	Objective
Comprehensive	No	Yes	Yes	Yes	Yes	No
Best Feature	Sarcastic wit	ExciteSeeing Tours	Excellent design	Green light icon	Scorecard	Excellent design

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CIRCLE NUMBER 69

for an easy-to-scan overview of preevaluated sites, the approach may be adequate. When you're researching a specific topic, be sure to check out the ExciteSeeing Tours; they don't cover as broad a range of topics as do the reviews, but they could prove to be your best avenue for gathering information.



Arts Reviews
Click to browse Arts subtopics

- Architecture
- Arts Magazines (under Entertainment)
- Books
- Ceramics
- Computer Art & Artistry (under Computing)
- Craftworks
- Dance
- Design
- Fine Arts
- Movies (under Entertainment)
- Photography
- Theater

Go To
Excite Home
Excite Search
Excite Reviews
Excite City Net
Excite Live
Excite Reference

Info
Help
Feedback
Advertising

Christo and Jeanne-Claude
Review: The world is Christo's studio, whether he's wrapping the Berlin Reichstag, or dotting the California countryside with hundreds of umbrellas. Three fans put together this fine tribute to Christo and his partner in art, Jeanne-Claude. Lots of pictures and text, and a preview of their current project

J.R.R. Tolkien Information Page
Review: Eric Lippert, at Canada's University of Waterloo, created this long.

This is one of the livlier Excite reviews we found. Most resemble abstracts.

LYCOS TOP 5% SITES

<http://point.lycos.com>

**CLEAR,
COGENT,
COMPREHENSIVE**

Lycos is well established as a search engine, but the site has been steadily expanding with a variety of features. In addition to the search tool, Lycos now features news, weather, and a city guide.

About a year ago, Lycos acquired Point Communications, which was dedicated to reviewing the best sites on the Web. Today, the

Point Reviews form the core of a large database at the Lycos site titled "Top 5% Sites: Pages worth a visit."

The guide is among the best we saw. The reviews, bristling with energy and personality, were always enjoyable to read. While they're short on specific details about what you can expect at each site, they don't mince words in condemning or praising a site's quality.

And whatever information may be missing from the text of the review itself can be found in the rating. Each site is rated on a scale of 0 to 50 in three categories: content, presentation, and overall experience. With this system, you never end up wondering if the reviewers are more impressed with a Web site's graphics than the quality of its information.

The site's overall design is pleasant and easy to use. It's easy to skim through the categories to find the list of recommended sites. The list includes the site title, a short descriptive phrase, and the scores. You can display the list in any of five different sort orders: alphabetic, date reviewed, or any of the three rating criteria. Unfortunately, even though you can sort reviews by the review date, Lycos keeps that information hidden; there's no way to display the date of the review.



Top 5% Sites Pages worth a visit

- Top News
- Sites by Subject
- Top 5% Sites
- City Guide
- Pictures
- Sounds
- People Find
- Point Review
- Read Maps
- Free Software
- Inside Lycos
- Club Lycos
- Site Map
- Help

Arts and Humanities
Architecture
Literature
Theatre & Dance
Business and Investing
Careers and Jobs
Corporate Home Pages
Investing
Computers and Software
Macintosh
Multimedia
Windows
Education
College Home Pages
K-12
Laborers

Just for Kids
Education
Entertainment
Sports & Recreation
News and Reference
Daily News
Magazines
Reference Information
Roads Less Traveled
Conspiracies & Hoaxes
Spirituality & Mysticism
UFOs/Mysterious Creatures
Science and Technology
Earth Science
Engineering
Space and Astronomy

POINTreview
New and Noteworthy
The Fritz
Tuned Out
Top Ten

The design of Lycos's Top 5% Sites makes it easy to find what you're looking for.

SITE-RATERS FEATURES COMPARISON

	Cnet Best of the Web	Excite Reviews	Lycos Top 5% Sites	Magellan Internet Guide	NetGuide Live	Yahoo Internet Life
Web address	http://www.cnet.com/Content/Reviews/Bestofweb	http://www.excite.com/Reviews	http://point.lycos.com	http://www.mckinley.com	http://www.netguide.com	http://www.zdnet.com/yil
Number of reviews (approx.)	500	60,000	10,000	40,000	50,000	2,000
Date of review noted	Yes	No	No	No	No	Yes
Rating system	None	✖ to ✖✖✖✖✖	 0-50 in 3 categories	★ to ★★★★★	★ to ★★★★★	★ to ★★★★★
Search for sites by name?	No	Yes	Yes	Yes	Yes	Yes
Adult content noted?	No	No	No	Yes	Yes	No

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CIRCLE NUMBER 31

SUBJECT CATEGORIES: WHAT THE RATERS RATE

	CINET BEST OF THE WEB	EXCITE REVIEWS	LYCOS TOP 5% SITES	MAGELLAN INTERNET GUIDE	NETGUIDE LIVE'S BEST OF THE WEB	YAHOO INTERNET LIFE REVIEWS
Animals						✓
Art(s)	✓	✓	✓	✓	✓	✓
Business	✓	✓	✓	✓	✓	
Career						✓
Commerce					✓	
Communication				✓		
Computers/Computing		✓	✓	✓	✓	
Culture				✓ (Pop)	✓	
Economics				✓		
Education		✓	✓	✓	✓	
Employment				✓		
Entertainment		✓		✓		
Environment				✓		
Family						✓
Film	✓					
Fitness			✓			✓
Food & Drink				✓		✓
Games	✓					✓
Government			✓		✓	
Health & Medicine	✓	✓	✓	✓	✓	✓
History						✓
Hobbies		✓				✓
Home Office						✓
Humanities			✓	✓		
Humor						✓
Internet			✓	✓		
Investments			✓			✓
Kids			✓	✓		
Law		✓		✓	✓	
Life & Style		✓				
Literature	✓					
Living				✓	✓	
Mathematics				✓		
Money		✓				
Movies & TV						✓
Music	✓			✓		✓
Nature					✓	✓
News		✓	✓	✓	✓	✓
New Sites	✓					
Personal Pages		✓				
Philosophy	✓				✓	
Politics		✓		✓		✓
Real Estate						✓
Recreation	✓					
Reference	✓	✓	✓		✓	✓
Regional		✓				
Religion					✓	
Road Less Traveled			✓			
Science	✓	✓	✓	✓	✓	✓
Shopping	✓	✓	✓			✓
Social Services						✓
Socializing						✓
Social Sciences					✓	
Society & Community			✓			
Software			✓			
Spirituality				✓		✓
Sports	✓	✓	✓	✓	✓	✓
Technology			✓	✓	✓	
Travel/Tourism	✓			✓		✓
Wheels						✓
World			✓			

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<http://www.iworld.com>

The multiple sort option proved to be a very helpful technique for deciding which sites were worth a visit, especially in categories that included dozens of sites. For example, before deciding which sites you want to place on your own short list, you may want to re-sort the list according to each review criterion to see which sites excelled in all categories. Lycos performed this re-sorting very quickly, so it proved to be a practical way to screen the list in crowded categories.

We also found Lycos's choice of categories to be relevant to the needs of the average professional or consumer. For the most part, the category names clearly describe the type of information you'll find; some of the other best-of-the-Web sites left us scratching our heads.

While Lycos is very businesslike in describing most sites, it does provide occasional entertainment value. Topics listed under the category The Road Less Traveled include Conspiracies & Hoaxes and UFOs & Mysterious Creatures. And if you're looking for specific recommendations, Lycos publishes a weekly top 10 list featuring the sites with the best scores in a category.

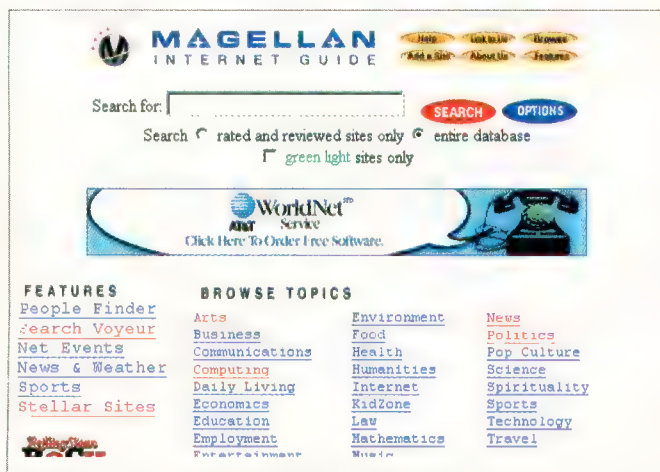
If you're interested in a guide that can speed your way to the best the Web has to offer, put Lycos's Top 5% Sites at the top of your list.

MAGELLAN INTERNET GUIDE <http://www.mckinley.com>

SENSIBLE SHOES

Magellan Internet Guide is the only organization covered in this roundup that considers reviewing and rating Web sites to be its primary job. Whenever you call up Web sites using Magellan—either by selecting from category menus or by searching on keywords—the response list presents you with star ratings and reviews. You don't have to go to a special area to find ratings; in fact, you can't avoid them.

This doesn't mean that every site Magellan might bring to your attention has been reviewed. Over 40,000 sites have, but several thousand others share a status Magellan calls "not yet reviewed." You have the option of searching the entire database or limiting searches to reviewed sites.



Magellan's interface resembles a search engine's.

BEST OF TEST

Lycos Top 5% Sites

As Siskel and Ebert can attest, good critics don't always agree. In choosing a Best of Test, we put little emphasis on whether the services' selections and judgments about best sites on the Web matched our own. Instead, we concentrated on how useful they could be in steering you to material of the best quality.

In rating Web sites and creating best-of-the-Web databases, builders of the six sites in our roundup face a more formidable challenge than the average critic. First, given the sheer immensity of the Web, they must cast a very wide net to capture a representative sampling of sites worthy of review. Then they have to come up with a review format that will appeal to a user group as diverse as the population of Web surfers. And that just gets them to the stage of assembling a body of reviews—one that will require constant expansion and revision.

Perhaps even more important for those who want to use such ratings is an interface that speeds the job of finding sites in categories that interest us. It doesn't matter if a site offers faultless evaluations (i.e., ones you agree with) if searching its database is frustrating and time consuming. Our guess is you won't want to bother.

The site that has done the best on all these counts is Lycos Top 5% Sites. Excite Reviews and NetGuide Live do just as well in meeting the first two criteria—compiling a wide-ranging database and coming up with accurate and useful evaluations—but in neither case is the interface fully up to the job. Finding the best sites in Lycos Top 5% Sites was always quick. And Lycos's ability to sort on its three ratings criteria (content, presentation, and overall experience) was a bonus. You may not agree that Lycos Top 5% Sites reviews offer the most stunningly insightful opinions, but you will find that it can save you time in your pursuit of quality information.

Magellan may be dedicated to site reviews, but its interface closely resembles that of a search engine. Site summaries are displayed 10 to a page, rather like search hits. The summary that appears for each reviewed site is the first 50 words or so of the full review. You can read the complete review or go directly to the site.

The site's conceptual design is a bit cumbersome, typically showing either too much or too little information: The short summaries displayed on the 10-sites-per-page listing don't tell you enough about a site, and the full-page reviews tend to be loaded down with unimportant details like the projected audience for the site and the identity of its producer. Given the layout configuration, we found we had to jump around among many different pages to compare what Magellan had to say about a variety of sites.

The rating system looks at three criteria: depth, ease of exploration, and "Net appeal" ("Is it hip or thought-provoking; does it offer new technology?"). Magellan doesn't give a score in each category; rather the individual numbers are tallied and translated into a four-star scale. The reviews tend to be factual and objective—rather than judgmental—providing an overview of what you can expect to find at the site. They're so evenhanded in their coverage that we found little difference between the tone of four-star and one-star reviews.

The overall structure of how the data is stored in the Magellan system has the feel of something that was designed for an academic or research environment where users were more interested in analyzing each site rather than quickly moving on to the most relevant Web pages.

In fact, Magellan seems to have largely overlooked consumer issues. The first listing in the Daily Living/Personal Finance category, for example, is A Man's World, a site Magellan describes as "a sort of interactive *Cosmo* for men." Many other popular personal-finance sites were missing altogether.

For categorizing sites that have a clear topical focus, however, Magellan's organizational approach pays off. For example, it lists 27 different categories under Food & Drink, including Meat (its top choice is "Barbecue: The Elite Meat to Eat") and Snack Foods (top choice: 7up.com).

Magellan deserves credit for helping to create a child-safe environment on the Internet. Sites that do not provide adult-oriented content earn a "green light" icon, and you can set searches to display only green-light sites.

Magellan's democratic approach will appeal to those who like the idea of a directory with prescreened site choices. The cumbersome interface, however, makes searching more of a chore than it ought to be.

Topic: [Daily Living / Gardening](#)

119 results returned.
(Displaying results 1 to 10)

[p. 1 2 3 4 5 6 7 8 9 10 11 12 \[Next\]](#)

★★★★	Algy's Herb page	•
Review:	This cleverly designed, comprehensive guide of herb information goes far beyond simple advertising. Not only can you order herbs, from agrimony to wintergreen, you can also learn about their culinary, ornamental, and medicinal uses. Abundant articles provide...	
★★★★	American Conifer Society	•
Review:	The perfect page for coneheads, this site celebrates conifers. Most bear pinecones, but as you will learn, not all do. Which ones don't? Not telling, you have to visit this verdant site to find out for yourself. Learn about rare conifers, ancient conifers...	
★★★★	Canoe Plants of Ancient Hawaii	•
Review:	This unusual but informative site concerns itself with the plants Hawaii's original residents	

Magellan displays summaries of each review, 10 on a page.

NETGUIDE LIVE'S BEST OF THE WEB

<http://www.netguide.com>

CAPTURES THE ESSENCE

NetGuide Live was going through a major upgrade during our reviewing process, so we weren't able to work with a totally finished product. Despite the overall site's work-in-progress status, however, its best-of-the-Web database was quite well developed. With over 50,000 reviews in place, it is second in size only to Excite. While it might take you a little longer to master NetGuide Live's layout and mind-set than those of some of the other best of sites, it's probably worth the effort.

NetGuide Live stresses online events and, according to its tagline, aims to be "your daily guide to the Net." A daily calendar features a long list of scheduled chats, broadcasts, and other happenings. For all of the goings-on, though, the Best of the Web feature is clearly one of the site's main attractions.

NetGuide: News/Reference - Microsoft Internet Explorer

File Edit View Go Favorites Help

NetGuide Live

What's On Now Search + Browse SiteAlert Net Know-How News/Reference

Search + Browse

Best of the Web → Business & Commerce → Real Estate → Financing

Financing

55 site profiles found [View full text profiles](#)

Rating	Site Description	Scorecard
★★★★	Bank Rate Monitor infoBank What's the latest trend in mortgage rates? What about credit card and ATM fees? Six-month mini-jumbos? ...	Site Details
★★★★	Berkeley Federal Real Estate Owned Big-time investors can register their name, then enter a long gallery of properties that Berkeley...	Site Details
★★★★	Fannie Mae	Site

HOME HELP ABOUT NETGUIDE LIVE FEEDBACK

It's WILD! it's WEIRD! it's DOMINANT!!

NetGuide displays 10 summaries at once, making it hard to compare sites.

You can either search for sites based on specific keywords or select categories from the hierarchical table of contents structure. Each site in the database is rated according to a five-star scale and is described in a paragraph that combines subjective opinion with details about the site's content.

No one who approaches NetGuide Live as a comprehensive directory to the Web is likely to be disappointed. Even the smallest topic categories offer dozens of individual reviews; most include hundreds. When you select a category, NetGuide Live displays a summary of 10 reviews, ranked by score. You can choose between a link to view the site directly and viewing a scorecard that contains the complete review and a breakdown of the rating into content, design, and personality components. Among other information, the scorecard notes whether a site contains adult content or requires registration—a useful touch.

The design works fairly well if you're inclined to limit your investigation to only the best sites. But with only 10 sites displayed at a time, it can take a long time to get a good cross-section of the full range of available choices.

Furthermore, the site's topic organization was problematic at times. For example, finding a list of the best sites for general news was more difficult here than at other sites. The category

NetGuide: News/Reference - Microsoft Internet Explorer

File Edit View Go Favorites Help

Go to NetGuide Magazine Wednesday, October 30

NETGUIDE'S BEST OF THE WEB: SCORECARD

Overall	★★★★
Content	★★★★
Design	★★★
Personality	★★★★
Parental Control	None
Fees/Registration	None

[Bank Rate Monitor infoBank](#)
Provider: Bank Rate Monitor
Access: Internet
URL: <http://www.bankrate.com>

What's the latest trend in mortgage rates? What about credit card and ATM fees? Six-month mini-jumbos? Check out Bank Rate Monitor infoBank for up-to-date info on what banks are paying and charging. Pick a high-interest CD or low-interest credit card from nationwide lists, complete with 800 numbers and advice on how to open an account in another state. You'll also find a wealth of friendly advice here on banking, personal finance, investing, and avoiding pitfalls.

HOME HELP ABOUT NETGUIDE LIVE FEEDBACK

If you can do it in a conference room, you can do it online.

Internet CONFERENCE
download free trial

Each review gives plenty of details about the site, mixing opinion with facts.

"General News & Reference" is broken down into 14 topics.

Two of those 14—News Services and Print Resources & Publications—cover similar ground. As a result, we ended up having to look in two or three categories before finding

the type of list we wanted.

On the other hand, NetGuide Live's search engine can help you avoid this problem if you'll take the time to master its syntax. The engine is easily confused by complex queries but does a surprisingly good job on single words. For example, a search on the term "mortgage rates" produced nine sites that had virtually no information on mortgages and one page from a mortgage bank. The results improved dramatically when we added quotation marks or when we searched on the single word "mortgage."

The actual reviews consistently captured the essence of each site in both words and ratings. Each review provided an opinion on whether a site was worth visiting and supported that opinion with pertinent detail on the type of information available. So if you're most interested in a guide that will help you jump right to the best place, NetGuide Live may well be your best choice—if you're willing to work a little harder to get where you want to be.

YAHOO INTERNET LIFE REVIEWS

<http://www.zdnet.com/yil>

**LITERATE
READ; LIMITED
RANGE**

The Yahoo directory of Web sites is so massive that, in itself, it's an argument in favor of a ratings guide. True to form, Yahoo is moving at the speed of the Web to address this emerging need; it now publishes three distinct best-of listings. Two of the lists—Yahoo's Picks of the Week and Yahoo for the Day—are short recommendations selected from new arrivals at Yahoo. They're neither rated nor critically reviewed. You can scan through a handful of earlier picks, but far from being comprehensive, these are little more than highlights.

REVIEWS OF THE BEST SITES FOR FUN, PROFIT AND PERSONAL GROWTH

YAHOO! Internet Life Search Results

Most Relevant ● ● ● ● Least Relevant

Title	You say	We said	Article Available?
● The AAA National Mortgage	NR	☆☆☆	✓
● First Things: Local Markets	NR	☆☆☆	✓
● Let Travel to New England	NR	☆☆☆	✓
● Home Office Mail	NR	☆☆	✓
● Life Insurance Encyclopedia	NR	☆☆☆☆	✓
● Mortgage Market Information	NR	☆☆☆	✓
● Evland Mortgage	NR	☆☆☆	✓
● Northwest Mortgage	NR	☆☆☆☆	✓
● Mortgage Teal	NR	☆☆☆☆	✓
● Private Mortgage Insurance	NR	☆☆☆☆	✓
● National Mortgage Investment	NR	☆☆☆☆	✓

Searching through Yahoo Internet Life's reviews is easier because the results are displayed in a table rather than as a list of abstracts.

A much more ambitious effort to guide users through the Web is underway at Yahoo Internet Life, a joint venture between Yahoo and Ziff-Davis Publishing, the computer publishing giant. You'll find links to this site from both Yahoo's and ZDNet's main pages.

Yahoo Internet Life (YIL) is a magazine-like site that features daily columns and links to a best-sites review database. The reviews are grouped by topic and the sites are rated on a four-star system. YIL rates with a sharper pencil than most other best-of-Web sites, however; it uses half-stars and a no-star icon (a dark cloud) for "pointless" sites. This makes, in effect, a nine-point rating scale.

The main shortcoming of the YIL effort is lack of scope: While larger than C|net's best of the Web, it has only two thousand sites in its database, which is a fraction of what the larger rating sites provide.

The YIL reviews are informative, even-handed, and well-written. Each site is described in a single paragraph that is long on detail and short on fluff. Higher-rated sites appear at the top

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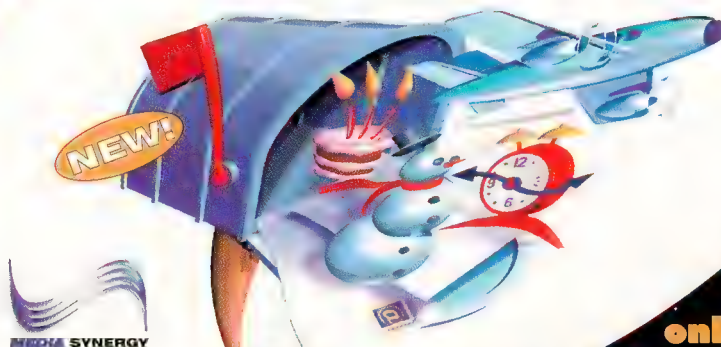
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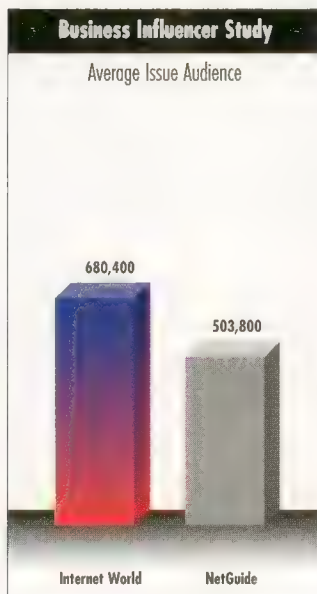
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With results like these, it's no wonder so many marketers have placed their trust (and advertising) in *Internet World*.

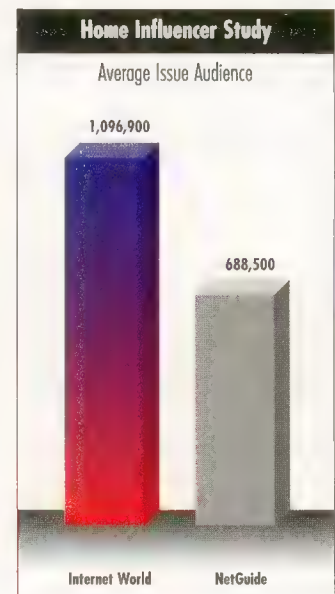
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Internet World leads
nearest competitor by 35%

IntelliQuest CIMS v3.0 Study Results



Internet World leads
nearest competitor by 59%

of the list, so if you're looking for a specific type of information and want to get there fast, chances are you'll find it quickly.

The overall design of the site is excellent throughout. The graphics add value to the page without slowing downloads appreciably. Convenient layout touches facilitate the search process. For example, reviews within a subject category are presented in list format; on the right-hand side of the screen at the top of each review group is a list of the sites reviewed that makes it easy to find your way around. And when you search by keyword, a table shows a snapshot of all search results with ratings and a link to the full review. It's more user-friendly than the list of abstracts that other "best of the Web" sites serve up.

YIL also invites users to get in on the act. You can submit a rating for any site you choose, based on YIL's six criteria. But users haven't yet caught up with the professional staff: Less than half the sites in the database include user ratings. YIL doesn't say how it will prevent Webmasters from rating themselves, but it clearly distinguishes between ratings from in-house staff and outsiders.

The Yahoo Internet Life Review site doesn't lend itself to scanning by topic nearly as well as do Lycos Top 5% Sites, Magellan Internet Guide, or NetGuide Live's Best of the Web. Further, as with C|net's best of the Web section, to get the meat you have to read articles rather than simply scanning brief

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[Consumer Information Catalog](#)

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the best

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YIL reviews appear only as part of longer articles about a topic.

summaries. On the other hand, this is also a strength: Because the reviews are so well-focused—and good reading to boot—you may find this approach saves you time in the long run. Overall, the YIL reviews are a good way to discover some of the Net's better sites—although with only about 2,000 reviews, the coverage is far from comprehensive. ■

Gus Venditto (venditto@iw.com) is the director of IW Labs and the author of The AOL Money Guide (Que). Send him your own suggestions for the best of Web.



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TRAFFIC SENSE

Local Internet routing could be a way to ease congestion and lower costs, but consumers need to lead the charge.

“What if we built a back door?” I was having lunch with a friend who owns the biggest Internet service provider (ISP) in the Tucson, Ariz., area. We were talking about how congested the main network access points (NAPs) are. The NAPs are the points in the Internet where the big boys link up. In effect, they have become the backbones of the Internet—the place where your packets go to jump from one major ISP to another. Think of the NAPs as big meeting places, where everyone can sit around the same table and share data. Congestion in the NAPs affects almost every Internet user, and is a big part of what makes the system so sluggish at times.

Only a handful of Internet service providers are directly connected to one or more NAPs. These are called “first-tier” providers, and they include the largest of the large: Altnet, BBN, MCI, Sprint, and a few others. All the other ISPs must buy service—directly or indirectly—from at least one of these first-tier providers. That ensures them a path across the backbone—one of the NAPs—to all other ISPs. So if you’re using a local ISP, it’s a good bet that it has a link to one of the first-tier providers. There are even third-tier providers who buy connectivity from the second tier and resell it.

The problem is that the NAPs have become horribly congested. The Internet market is massive, and no one player is dominant. That means the odds are pretty good that a large percentage of your electronic packets of information (your e-mail, for example) will have to pass through one or more NAPs as it travels to its final destination. Whenever packets go through a congested NAP, there’s a chance of losing data, which translates into poor response time or a plain inability to connect. The congestion and data loss have

become so bad that some first-tier ISPs have built private links so that packets from their customers don’t have to go through the NAPs, but can travel swiftly over dedicated lines.

SHORTENING THE ELECTRONIC JOURNEY

Look at a city like Tucson, which has at least a dozen T1 links coming in from first-tier ISPs. Most of those links go to second-tier ISPs, who then resell access to the Tucson community as dial-up accounts, dedicated lines, Web hosting, and so on. The rest go to organizations large enough to need their own first-tier link, like the University of Arizona.

This creates a peculiar routing problem, with two Tucson ISPs shipping their packets via Los Angeles, San Francisco, Denver, and Dallas in order to end up across the street or down the block. It’s an expensive way to make a lunch date. And that brings us to my question: Why not build a back door?

The idea is simple: Packets going from one side of Tucson to the other should stay within the city. Build a shortcut route among local companies so that the expensive and congested links to NAPs are bypassed.

This has three benefits. First, local traffic doesn’t contribute to existing NAP congestion. That makes us good citizens on the Net. Second, local traffic doesn’t go over expensive lines to the first-tier providers. That saves money because we can either have slower lines or put off buying faster ones. Third, performance is better. Electrons and routers move quickly, but there’s a big difference in the delay (called latency) you experience going across town as opposed to traveling hundreds of miles.

There’s even a fourth benefit: better communication and cooperation within a city. Even though many of the companies that might participate in such a scheme are ISPs who compete



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with one another for customers, there are benefits to the community in having good personal and professional relationships among ISPs. It's always a good idea to be on good terms with your neighbors.

NOTHING TO LOSE

So it's a win-win situation. What are the drawbacks? Well, if it's done right, the answer is none. The biggest problems are technical: These back doors have to be engineered properly—something that may take considerable time and thought.

The architecture is simple: Imagine a central point, with lines radiating from the center to each of the participants. Everyone who wants to participate has to get a connection to the central point, and that's where the packets will be switched from one local Internet user to another.

These back doors are inexpensive to put together within a city because the local exchange carriers (LECs), the companies that own the telephone system in each city (such as US West), offer favorable rates for this kind of network. Most companies who would build these back-door routes already have a connection to the LEC frame-relay network. That means adding a connection to

a central hub is dirt cheap. For example, in Tucson, it costs less than \$100 per month to add a T1 circuit to an existing frame-relay connection.

All it takes to set up a mini-NAP is for one of the participants to act as the hub site and everyone else to order a circuit to the hub. There's a slight inequity in that the hub's resources are used more heavily than those of the spokes. On the other hand, the hub has better access (one hop instead of two) to all other participants, so there is a certain technical advantage to volunteering.

There would also be a reduction in bureaucracy. NAPs operate under complex bilateral peering arrangements that must be negotiated among all the parties. These are necessary for two reasons. First, the participants in the NAP have a strong interest in restricting who can be a full participant. This has both economic and technical benefits. The harder you make it to be a first-tier ISP,

**THE BENEFITS
ARE SO GREAT
AND THE COSTS
SO LOW THAT A
PRIVATE LINK
MAKES SENSE.**

the fewer there will be, and the bigger the rewards for those that make the grade. Second, not everyone connecting to the NAP is on the same level. Some smaller ISPs who have only a single connection must also have an arrangement—called a transit agreement—with a first-tier provider to ship packets to other NAPs.

With a mini-NAP, there's no need for such a complicated policy structure. By definition, everyone who comes to the mini-

NAP is a peer to everyone else. There's no benefit in artificially limiting participation. Also, because every member connected to it has a link to the outside world, there is no need to negotiate transit agreements.

My lunch pal who owns an ISP agreed. He contacted all of the other ISPs in Tucson and, over the next few months, they set up The Tucson Interconnect. It took a couple of rounds to get it right, but in the end, the simplest structure won out: Come to the NAP, pay your fair share, and you're in. It's turned out to be a success, not only for the improved connectivity and reduced load on the big NAPs, but also because we now have stronger relationships in our Net community.

Since we had our lunchtime chat, I discovered that there are other mini-NAPs popping up around the world. The benefits are so great and the costs so low that even in cities that have only two service providers, a private link makes sense.

RALLY FOR A NEW ROUTE

So why am I telling you all this? Grassroots pressure, of course. Once you get a mini-NAP set up, it's a breeze to operate. However, most ISPs today are so busy that ventures like a creating a mini-NAP can get pushed off indefinitely. Now that you know about the benefits of mini-NAPs—to you and the Internet as a whole—help persuade ISPs to reprioritize things so a similar project gets off the ground in your town.

If you're using a local ISP, ask customer support whether it participates in a local NAP, sometimes called a regional exchange point (REP) or regional access point (RAP). If not, suggest that it join one or set one up. If your company has a dedicated T1 (or faster) line to a nonlocal ISP, see if there's a mini-NAP in your town that you can join. ■

Joel Snyder (jms@opus1.com) is a senior partner at Opus One in Tucson, Ariz.



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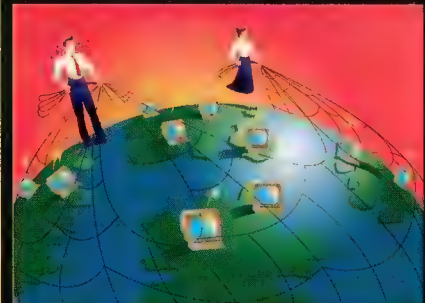
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DIALING FOR DOLLARS

Internet telephony, faxing, and voice mail promise to deliver substantial cost savings and give businesses greater network control.



against "the big three," the truth is that by staying ahead of their competition by offering a richer set of features, they are well-positioned for long-term survival because consumers perceive a higher quality of product when they pay.

From the business side, VocalTec is now a publicly held company, and in July Voxware filed its IPO, so VOXW should soon be trading on NASDAQ. From what I've heard, NetSpeak is planning an IPO in the near future. During 1997, several more companies will join their ranks.

It looks like one of the early casualties of this marketplace shift may be Quarterdeck's WebTalk, which has been handed off to FutureLabs, another company in the Quarterdeck family, for further development. I don't anticipate hearing much more about WebTalk anytime soon.

TELEPHONY TAKEOFF

One of the factors limiting Internet telephony used to be that it required two users to be on the Net at the same time to make a connection. Not anymore. One of the most significant developments during 1996 was the introduction of commercial Internet gateways that enable interconnectivity between the public-switched telephone network and the Internet.

During 1996, projects such as Free World Dialup (<http://www.pulver.com/fwd>) foreshadowed this. The first commercial implementation came in August 1996 from IDT Corp., whose Net2Phone allows you to dial a regular telephone from a PC. IDT recently announced a Net2Phone Direct service, which will allow you to pick up a phone, dial a local-access number, and place a long-distance call that is routed over the Net for the cost of a local call.

While service through IDT's gateway is not yet for sale, several other products are. Companies such as Lucent Technologies, NetXchange, Rockwell International Corp., Vienna Systems, and VocalTec have developed gateways. Two companies that provide much of the underlying gateway technology are Dialogic Corp. and Natural MicroSystems.

Internet service providers (ISPs) and corporate telecommunication groups will be the primary users of the technology, but you'll also see firms who are putting catalogs on the Net using the products to allow customers to ask questions. Imagine browsing online through the L.L. Bean catalog and being able to ask a representative about colors or sizes available. These Internet gateways offer functionality that can be broken down into three general categories: telephony, faxing, and voice mail.

The Internet telephony industry is slowly growing into the \$2.5 billion marketplace that has been predicted by the end of 1999. In fact, these days there are more than 26 different telephony software products available. One of the Web pages I maintain, called VON (Voice on the Net, at <http://www.von.com>), has been tracking the growth of this industry for the past two years.

With Intel, Microsoft, and Netscape all providing high-quality Internet telephony software products for free, the dynamics of the marketplace have changed forever. But just because 30 million people have a free copy of Microsoft's NetMeeting or Netscape's CoolTalk doesn't mean they're using them. The next tier of major players—NetSpeak, VocalTec, and Voxware—are selling their software through consumer channels. While some people may question their ability to survive

The telephony technology is giving birth to what I call "NextGen Telcos." By using gateway products, they will be able to offer consumers the ability to pick up a telephone, dial into a local-access number, and enter a long-distance number. While the quality of this service will not compare to that of a typical long-distance telephone call, the telcos will be able to offer inexpensive long-distance rates over the Net—including the ability to send cheap faxes. The promised savings is somewhere between 40 and 80 percent, depending on the global destination.

One of the problems already observed is that while the price points for Internet phone calls are low, it is difficult to provide a reliable quality of service. Early feedback from people who have used these services indicates there still is a basic level of service that most people expect when placing a phone call—even dirt-cheap ones—and they have noticed fuzziness, delays between parties when speaking, and echoes.

Joining IDT in offering PC-to-telephone calling are AlphaNet Telecom, Delta Three, Global Exchange Carrier Co., and ShadowTel Communications.

One thing to note is that gateway products can run across a corporate local area network (LAN) or wide area network (WAN). They can produce a much more reliable quality of service in these environments, while taking advantage of the infrastructure in which the company invested to provide connectivity.

FAX SAVINGS

While telephony companies continue to battle it out for market share and while the overall quality of service continues to improve, one field that should be getting a lot of attention in the near future is the emerging market of Internet-based gateway faxing products. Imagine being able to put a piece of paper into your office fax machine, enter the destination phone number, and instead of making a long-distance call, route the fax over your intranet to a fax machine in your London office.

Let's face it, if your firm is spending more than a million dollars a year on long-distance calls and more than 40 percent of those are faxes, you would be interested in a way to cut those costs.

While walking around the Interop show this fall, I ran across NetXchange (<http://www.ntxc.com>), a company that offers faxing over the Internet. After spending an afternoon with the senior executives of the firm, I realized that the company has a keen understanding of the marketplace and has developed products that do not require people to change their habits to take advantage of these enabling technologies.

NetXchange has developed a product called Internet Xchange for Fax that allows you to send faxes over TCP/IP networks. Internet Xchange runs on Windows NT and the software has the ability to automatically route all fax traffic between servers in an organization's global LAN/WAN. Over a TCP/IP network, faxes can be delivered on a least-cost routing basis, depending on the volume of the fax traffic and the locations of Internet Xchange servers set up within the organization.

With Internet Xchange installed on a global network (whether strictly intra-enterprise or on a vendor-customer basis), companies could reap the benefits of lower fax costs and at the same time gain the network-management tools needed to monitor fax traffic.

People who are quick to embrace this technology will be the

ones reaping huge year-end bonuses in 1997. However, I don't expect many companies to take the lead in installing these systems. One of the lessons I learned from my three-year stint as a VP of information technologies for an international broker-dealer firm on Wall Street is that most people are inclined to wait for their competitors to try out a new technology, moving forward only after it has proven to be an asset.

One of the real issues within these corporations is determining who will dictate policies concerning the corporate LAN. In some cases it has taken corporations two to three years to implement the tools for monitoring their network traffic on a global basis.

These same fax servers that are being pitched to corporations are also being targeted at international ISPs. In the future, look for some ISPs to offer Internet fax services as a way to differentiate themselves from their competition.

As the industry moves forward, these technologies will continue to improve. While the long-distance phone companies may not lose much—if any—revenue as a result of Internet telephony, the same will not be true for Internet faxing. A prediction: If faxing over the Internet becomes a popular means of bypassing the long-distance carriers, you can be assured the America's Carriers Telecommunication Association (ACTA) and others will be looking for ways to regulate the technology.

**PEOPLE QUICK
TO EMBRACE THIS
TECHNOLOGY
WILL REAP
HUGE YEAR-END
BONUSES.**

NET VOICE MAIL

Voice mail has been an option available on corporate phone systems since the early 1980s. These days I find myself spending more time leaving messages for people on voice mail than speaking to them directly. In fact, there are times when I would rather leave a voice message than speak with someone directly. How many times have you received a phone call at work only to hear someone hang up? Chances are they wanted to get your voice mail and not you.

One of the byproducts of Internet telephony is Internet-based voice mail. Both Internet Phone 4.0 from VocalTec (<http://www.vocaltec.com>) and WebPhone from NetSpeak (<http://www.netspeak.com>) offer voice mail as a supported feature.

At its recent developer's conference in New York, Netscape (<http://www.netscape.com>) unveiled a new line of intranet solutions that includes Netscape Communicator. With the Navigator 4.0 browser, you will be able not only to send and receive e-mail messages, but to send and receive integrated voice-mail messages as well.

As more companies start to investigate Internet/intranet voice mail over the next two to three years, some people will start using their computer workstations (both at home and in the office) as a direct replacement for their telephones. During the past six months there have been times when I had more voice-mail messages waiting on my home PC than on my home answering machine.

As the underlying technology continues to move forward, now is the time for companies not only to support industry standards but to support the efforts of organizations like the International Multimedia Teleconferencing Consortium (<http://www.imtc.org>) so that telephony, faxing, and voice mail can continue to grow. ■

Jeff Pulver (jeff@pulver.com) publishes The Pulver Report (<http://www.pulver.com>) and is author of Internet Telephone Toolkit (John Wiley & Sons).

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THE WALL STREET JOURNAL,
OCTOBER 17, 1996

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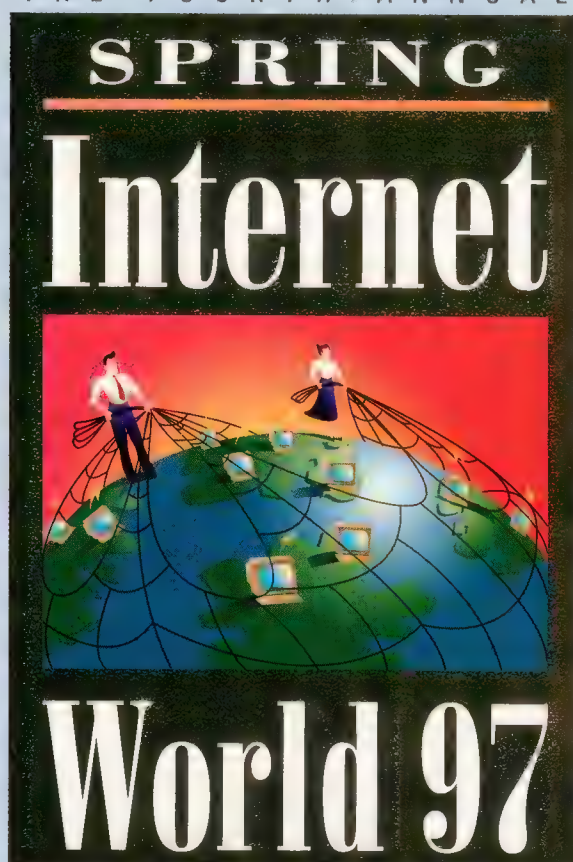
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ACTIVATING ACTIVEX

ActiveX is Microsoft's technology for placing prefabricated features on Web pages. This tutorial will help you put it to work on your pages.

If you've spent any time at all around the new breed of Web browsers—Microsoft Internet Explorer 3.01 and Netscape Navigator 3.0—you've probably heard the term ActiveX. While Java is still king of the Web buzzwords, ActiveX is quickly gaining ground. Here we'll look at just what ActiveX is all about, determine if it's of any use to you as a Web page author, and show you how to use it.

The basic concept behind ActiveX implementation is simple: It allows a piece of computer code (a program) to run from inside a Web page. The program could be designed to perform almost any function, from playing sound to interpreting the results of a user's input. This is a logical step in the progress of Web pages, which in the beginning could display information only in predefined styles.

Microsoft's ActiveX certainly is not the first attempt to extend the power of Web pages in this way. Java is based on much the same concept, as are scripting languages such as JavaScript and Visual Basic Script (VBScript). However, these Web extensions are not equal, and each has pros and cons for both developer and end user.

ActiveX is based on the notion of a "control"—a modular chunk of computer program that you add to your Web page. Generally, you don't create the control yourself. It comes premade from a developer with a fixed set of features. As the Web page author, you can alter the states or properties of these features.

The main advantage of ActiveX controls is that they make it easy to add special features, such as pull-down menus, to your Web page. ActiveX controls are analogous to Java applets and also resemble plug-ins for Netscape Navigator. The three commonly touted advantages of ActiveX controls are:

- When using the appropriate software to insert and configure an ActiveX control, its set of properties is displayed on-screen for the author to modify. With Java applets, you must read the documentation for a particular applet to learn what characteristics it supports. (You still must consult the documentation for ActiveX controls to learn what each property does.)
- Unlike plug-ins, if a user visits your page and doesn't have the ActiveX controls needed to view your content, the controls will be downloaded automatically and installed on the user's computer. If you later include a newer version of a control and a user revisits your site, the earlier

version will be detected and the user's computer will be updated with a current version of the control. Plug-ins must be downloaded and installed manually.

- When controls are automatically downloaded, they are checked for security tampering. If the browser finds that the ActiveX control may have been tampered with, it will either alert the user or prevent downloading the control altogether.

ActiveX controls are directly supported only by Microsoft's own Web browser, Internet Explorer 3.0. There also is a plug-in available from NCompass Labs (<http://www.ncompasslabs.com>) that provides ActiveX support for Netscape Navigator. Readers who use different browsers on non-Windows platforms may feel alienated if you use ActiveX controls they cannot see. It's hoped that ActiveX will propagate across platforms and browsers.

LIGHTS, ACTION

Before you can insert an ActiveX control into a Web page, you must have the control resident on your computer. If you have installed Internet Explorer 3.0, a small set of controls has already been set up on your machine. To obtain more controls, simply visit Web pages that have the control you want (the control will automatically download and install). Several catalogs have already been developed that let you browse controls for future use. There is Microsoft's ActiveX Component Library at <http://www.microsoft.com/activex/controls>, and C|net's catalog at <http://www.activex.com>.

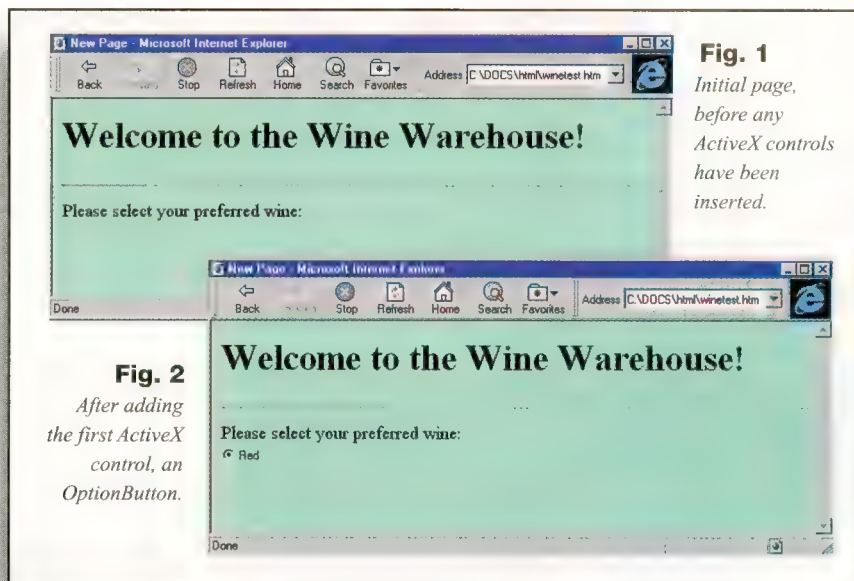


Fig. 1
Initial page, before any ActiveX controls have been inserted.

Fig. 2
After adding the first ActiveX control, an OptionButton.

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ActiveX controls often are inserted into Web pages using the HTML `<object>` tag. This approach requires some esoteric knowledge, such as the Class ID of the ActiveX control, as well as the properties it supports. To make it easier, Microsoft has released a utility that allows you to add ActiveX controls with point-and-click ease. Called the ActiveX Control Pad, this free program lets you choose, place, and configure your chosen controls graphically, and the appropriate HTML code is then generated automatically.

As of this writing, there are no other tools that facilitate adding ActiveX controls to Web pages. It has been speculated that the next release of Microsoft's FrontPage will sport this feature, and competing products should appear.

You can acquire the ActiveX Control Pad software (one large self-extracting file) by FTP from ftp.microsoft.com. Look in the `/developer/msd/ncpad/` directory for the file `setuppad.exe`. On the Web, try <http://www.microsoft.com/workshop/author/cpad/setuppad.exe>. As a last resort, check the products section of Microsoft's home page at <http://www.microsoft.com/products>.

The Control Pad displays the HTML code of a Web page. You can load an existing page or use the editor to compose a new page by typing in HTML tags. The Control Pad is not a Web page design program; it only exists to insert ActiveX controls into existing pages. In this example, we've used the File Open menu to load a small HTML file we previously created (see Figure 1).

For our example, let's imagine we're creating a small wine catalog. This example will use two types of ActiveX controls to illustrate the basic principles involved. At the start, our page is a simple HTML document that contains only the headline "Welcome to the Wine Warehouse" and the suggestion "Please select your preferred wine." Ultimately, we want this page to support the following interactions:

- The user clicks a button representing a wine that is red, rose, or white. The ActiveX control is `OptionButton` (the official name is Microsoft Forms 2.0 `OptionButton`).
- A text button on the page will, if clicked, take the user to another page of specials on the preferred wine type selected. Furthermore, the label on the text button changes to reflect the selection—for example, "Click to see current red wine specials." The ActiveX control for this is `CommandButton` (official name—Microsoft Forms 2.0 `CommandButton`). (If you select Insert ActiveX Control from the

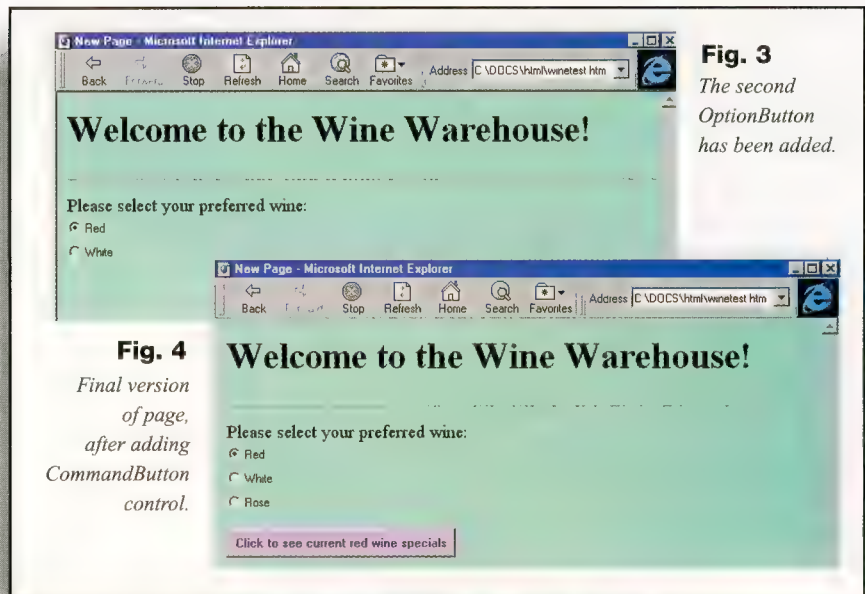


Fig. 3
The second
`OptionButton`
has been added.

Fig. 4
Final version
of page,
after adding
`CommandButton`
control.

Control Pad's Edit menu, you'll see a list of available controls. These controls are included with Control Pad and should be on your system.)

Now we're ready to construct our Web page. To begin, we add the first of three `OptionButtons` (also known as radio buttons). Because we want this button to appear just below the text, "Please select your preferred wine," position the cursor in the edit window just after that portion of the HTML Select Insert ActiveX Control from the Edit menu, and choose Microsoft Forms 2.0 `OptionButton` from the list.

The Control Pad will show two new windows (see Figure 2). One is a graphical representation of the control. You may stretch or otherwise position the control in this window. The other is a list of properties for the control, any of which you may modify. In the case of the `OptionButton`, we want to modify the Caption property. Do this by clicking on Caption in the Properties window and keying in the new caption beside the Apply button. Our first button will be for the red wine option, so we'll type "red." Click Apply and you'll see the change reflected in the property list.

Next we change the ID property. The ID never appears on screen; it is for internal reference only. In this case, let's set the ID property to "redbutton." Last, look for the property Value, which is near the bottom of the list. We want to set this to "True," thereby making red wine the default selection when the page is first viewed by a user. Click on the Value property and enter the word "True" in the Apply box. Click Apply to complete the change.

You'll note that there are many other properties that we didn't change. Documentation for these properties is in the Help pages of the Control Pad. Documentation for Microsoft controls not included with the Control Pad can be found at <http://www.microsoft.com/intdev/controls/controls-f.htm>.

Now that we're done configuring this control, close the window named Edit ActiveX Control and the Properties window will automatically close as well. The appropriate HTML code representing our new control will appear in the current document as a series of parameters within a single `<object> . . . </object>` tag. We'll position the cursor after the closing `</object>` tag, and create two more `OptionButton` controls. Basically, we want to repeat the above procedure (starting from the Insert ActiveX Control step), but remember to set the Caption and ID differently in order to reflect the correct wine option. For example, when creating the "rose" wine `OptionButton`, set Caption to "rose" and ID to "rosebutton." Be sure to set the Value property of the rose and white `OptionButtons` to "False," because only one wine can be selected as the preferred type. Save your page in progress frequently, and always save it just before loading it into your browser for a test run.

THE FINISHED PRODUCT

Now we've got a Web page with three options, and it should look something like Figure 4. Load the page into Internet Explorer 3.0 and you should be able to click each option. You'll notice that the options are in a horizontal row. If you'd prefer them to be aligned vertically as shown, enter the

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HTML tag `<br>` after the closing `</object>` tag for each `OptionButton`.

Next, we want to add a button that will bring the user to the Current Specials page. Go back to Insert ActiveX Control and select the Microsoft Forms 2.0 `CommandButton`. In the Properties window, first alter the `AutoSize` property. Select this, and a small menu will appear next to the `Apply` button allowing you to select `True` or `False`. We select `True`, so the button will change size depending on the length of the text we use for the label. Next, modify the `Caption` property. Because we've decided that red wine is the default, type "Click to see current red wine specials." Using scripting, we'll change this label as the user changes his preferred wine type, but that's later. Now, let's set the `ID` property for internal reference and name it "gosales."

Save the page and load it into your browser. Although the button appears, clicking it doesn't do anything. That's where scripting comes in. In scripting, we will strive for three goals:

- To modify the caption on the `CommandButton` to reflect the currently selected wine preference.
- To have the Web page's URL change to the one the `CommandButton` leads to when a wine preference is selected.
- To launch a new page of wine specials when the `CommandButton` is clicked.

Using the ActiveX Control Pad, we can create scripts in either VBScript, JavaScript, or a pseudocode known as the List View. If you're familiar with scripting and would prefer either VBScript or JavaScript, make your preference known by selecting `Scripting` from the `Options` menu (select your preferred language and select `Code View`). To begin creating a script, start the `Script Wizard`, either from the `Tools` menu or clicking the scroll-shaped icon at the right side of the toolbar.

SCRIPTING LIKE A WIZARD

The `Script Wizard` window is composed of three panes. The left-hand pane (numbered 1 on the screen) contains a list of each object in the current Web page. Expanding an object (by clicking on the plus sign to the left of the object name) will display a list of possible events for that object. (An event is something that can happen to the object; it can be clicked on, for example.) Click the plus sign beside the object named `whitebutton`, for instance. One of the listed

events is called `Click`. So, we want to script what will happen if the user clicks the white wine selection. Recall that there should be two consequences of a single click on the wine type: change the caption of the `CommandButton`, and change the URL that it will lead to.

Click on the `Click` event to highlight it.

Now we must select an action to occur; they are in the right-hand pane (numbered 2). The first action happens to the `CommandButton`, which we named `gosales`. Click the plus sign beside the `gosales` object in pane 2 and a list of actions appears.

The first action we want is to change the caption, so click the action named `Caption` to highlight it. We'll now turn our attention to the bottom pane of the `Script Wizard` (numbered 3). Click the `Insert Action` button. We're asked to enter a text string. Here, you type what the new caption should be. In this case, we're scripting for the event of selecting white wine, so change the caption to read: "Click to see current white wine specials." Click `OK`, and a description of the new action will appear in the lower pane. (If you change to `Code View`, you'll see the actual script rather than a plain-English description.)

Now we need to define the URL of the current wine-specials page. Note that these pages are only hypothetical—if this were real life, we'd have to make additional Web pages containing the current specials for each type of wine. Because the URL is different for each type of wine, we need to create a global variable that will represent the URL. By doing this, we can script the `CommandButton` to lead to whatever page the global variable is set for.

To create this new global variable, right click on `Global Variables` in the `Actions` pane. From the pop-up menu, select `New Global Variable`. It will prompt for the name of the new variable. Here, you want to enter both the name of the variable and its initial value. We'll name the variable "salesurl" and set its initial value to `http://www.mysite.com/redsals.html` (recall that red wine is the default preference). To do this, when it asks for the name of the variable, type in `salesurl = "http://www.mysite.com/redsals.html"`, including the double quotes as printed.

Finally, we're ready to define the second action for the white-wine click event. Be sure to highlight the `Click` event under the `whitebutton`—our one action should be listed in the lower pane. The second action is to modify the value of the global variable `salesurl`. Thus, expand the `Global Variables` in the `Action` pane, and click on

our one variable, `salesurl`. Then choose `Insert Action` from the lower pane. This will prompt for a new value, where we'll enter the correct URL for our white-wine specials, such as `http://www.mysite.com/whitesals.html`.

We've now defined two actions for the event of clicking the white-wine option. We must repeat the above for both the rose and red objects. Each time we must change the caption and the value of `salesurl` to reflect each wine type.

Now the `CommandButton` must be scripted to open a new Web page upon a `Click` event. This is easy: In the `Event` pane, expand the `gosales` object. It, too, has a `Click` event. Highlight this event. In the `Action` pane, expand the `Window` object. Within the `Window` object, you'll find another object called `Location`. It also has a plus sign, so expand it. Within this `location` object, you'll see an action called `href`. This is the action we want to take: It will cause a specified Web page to open.

Highlight the `href` action, then click the `Insert Action` button in the lower pane. We'll be asked to enter a text string. This would be the URL to open; however, recall that we created a global variable that contains the URL. Rather than entering a text string, we refer `href` to open whichever URL our variable `salesurl` contains. Thus, click the button `Custom`. We're now asked for a value or variable name, and here we can type "salesurl."

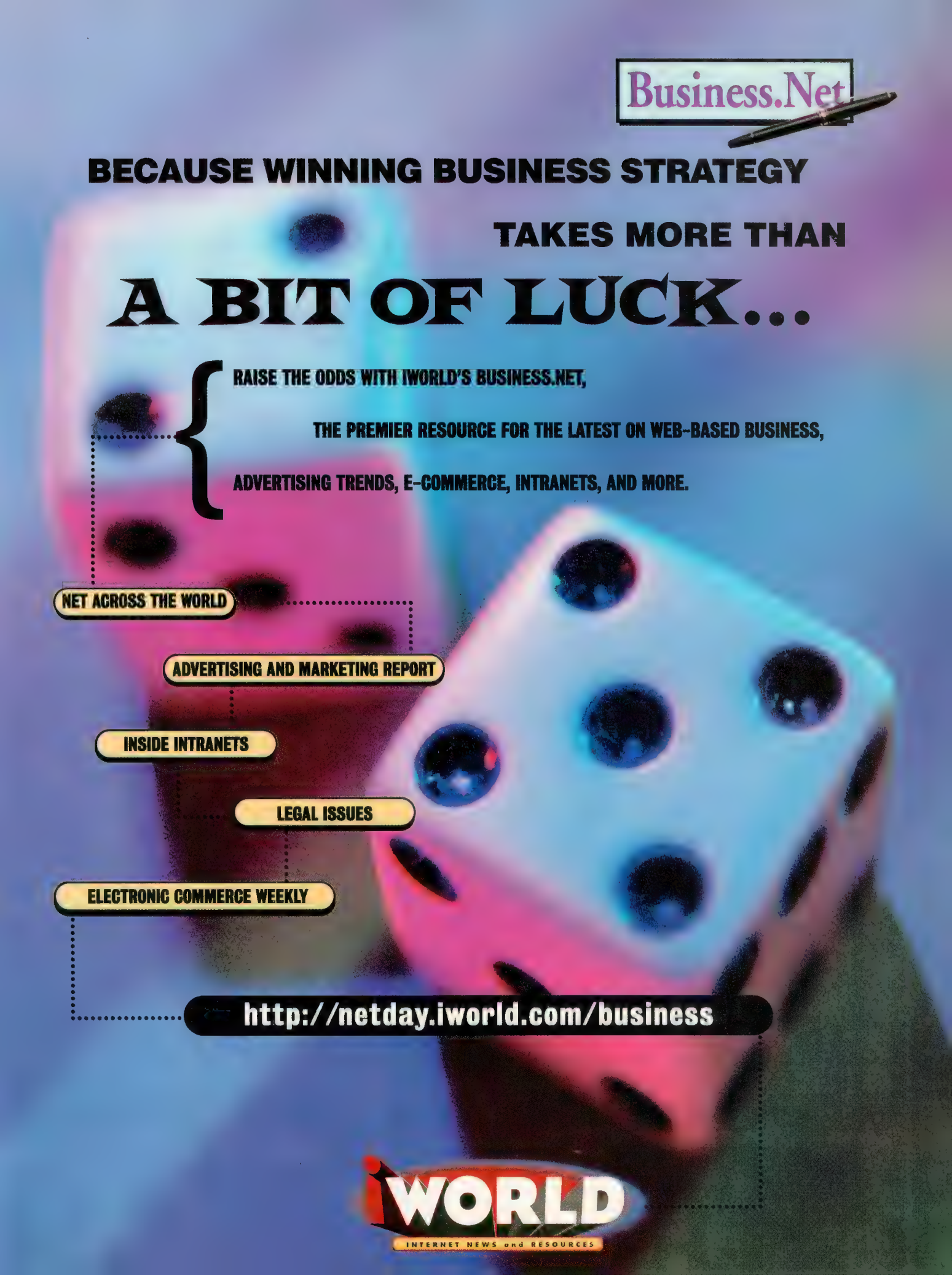
Note that the lower pane reads, "Go to page `salesurl`" for our action. Click the `OK` button at the bottom of the `Script Wizard` now, and the `Control Pad` will insert all of the HTML of our script into the document.

That's it! We've created a small Web page that contains two different ActiveX controls. From there it's simply a matter of learning additional controls—some of which are larger and more complex, allowing for more dazzling results. ■

Aaron Weiss (aaron@pobox.com) is a freelance writer based in Canada.

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Microsoft vs. Netscape

Senior editor Andrew Kantor and some Net journalists and pundits debate the question: As Microsoft and Netscape begin their war for the Internet users' desktops, which will prevail—love or money?

It's been billed as the fight of the decade: Multibillion-dollar gorilla Microsoft vs. startup and crowd favorite Netscape Communications Corp. The former has more money than God, the latter has, by some estimates, an 80 percent market share. War has already been officially declared and covered (and covered and covered) in every publication from *Internet World* to the *Wall Street Journal*.

Who will win the browser/server/Internet/intranet battle? Microsoft doesn't lose often—but it *does* lose—and comparisons have been made to the IBM of the 1980s. Netscape may be popular now, but so was WordPerfect once upon a time. Is this David vs. Goliath, or Godzilla vs. Bambi?

CATHERINE BUZZELL: Microsoft is ready to take over the browser business, and those boys aren't playing around. Internet Explorer looks real good, and the product's forward-thinking innovations such as embedded sounds and floating frames are reminiscent of the Netscape extensions that got Web designers so excited a couple of years ago. And yes, a lot of people care about who will win this war. Netscape gave startups a real hope of making it big in the high-tech industry, and if Microsoft wins, it'll break a lot of hearts.

JEREMY CARL: To me, the more important question is, how is Microsoft able to spend

tens of millions of dollars putting hundreds of developers and support staff on a non-revenue-generating product like Internet Information Server or Explorer and get away with it? The fact that it has not been prosecuted under antitrust laws for its behavior is just incredible. Of course Microsoft is going to be competitive when it is "dumping" its product—giving it away for the primary purpose of driving its competitor, Netscape, out of the business that Netscape pioneered.

I suppose Netscape will have the consolation of knowing that its developers are the ones who really enabled the Web revolution and that Microsoft could only compete by using its money and marketing muscle to crush a smarter, more innovative Netscape team.

ANDREW KANTOR: I think Tim Berners-Lee might have something to say about who started the Web revolution. But if I had to choose between consolation and cash—well, only one pays the rent.

STEPHEN SATCHELL: Too bad Ted Nelson hasn't spoken up; he proposed hyperlinked text in 1988 at the Hacker's 4.0 conference and was part of Xanadu when it tried to make that work. Why is this never mentioned in Web history?

But back to the topic: Who remembers the spreadsheet wars of the '80s? It was Bricklan's Visicalc vs. Microsoft's MultiPlan—yet this hippy upstart company called Lotus Development Corp. stole the show with a program called 1-2-3. Faster. Better. Tight.

Someone's going to get mad that all the existing browsers are RAM hogs and will figure out how to do it without requiring the browser to become the machine's new operating system. Bill and

Marc will then be due for a rude awakening. Mitch Kapor, where are you?

CARL: Andrew, credit to Tim Berners-Lee granted, but I still think Netscape was more fundamental to the development of the Web. As for Stephen's point, I agree that current browsers are RAM hogs. The solution both Netscape and Microsoft have will be the 4.0 versions of their products early next year that will integrate browsing with the operating system—and probably cut a lot of overhead in the process. Of course, Microsoft will have some unfair advantages here because it owns the operating system.

BUZZELL: I hope Satch is right. Netscape was the upstart back in that day, but it's not faster, better, or tighter anymore. Those standards made more sense when the beauty of the Internet was that it was pretty much one format: ASCII text. The average person doesn't get mad when their programs hog RAM; they think they deserve it. But no one deserves a crash, and Navigator and Explorer bring down my machine like a matador brings down a bull. Now, from Microsoft's perspective, is it Explorer vs. Navigator or is it really ActiveX vs. Java?

KANTOR: Jeremy's comment that Microsoft owns the operating system is a common one, for sure. But people are happy using lots of non-OS-based applications, so I don't think double-clicking on the Netscape icon will put them out much.

But there's a more important factor on Netscape's side: This time, Microsoft doesn't own the standard. In word processors, if your company used WordPerfect, you used it because you had to comply with the standard. Now everyone uses Word—and Excel and Powerpoint—for the same reason. But Microsoft doesn't

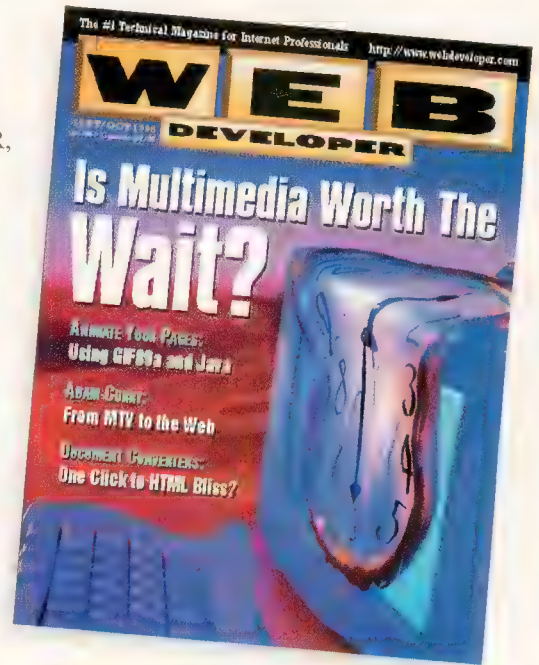
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own HTML, so each individual can choose which browser to use and still be compliant with the rest of the world. And there are a lot of people who simply don't like Microsoft and are happy to use a competitor—especially when that competitor has a better product.

As far as ActiveX vs. Java, they're both—at least on the face—open standards. I suspect both browsers will support both of them.

CARL: ActiveX (or OLE with a new marketing strategy) may be open, but it is a security nightmare waiting to happen. The network computer running Java will become a real force, and Netscape, thanks to its Navio division developing "browsers" for that network computer, will beat Microsoft to the punch there. Microsoft may be talking the talk with network computing, but it will never walk the walk. Too much of its revenue and power is tied up in the status quo. As far as the bug-giness issue, both clients do crash too much, but when you come out with three—and soon four—versions of a product in one or two years, you've got to expect some bugs are going to get through.

SATCHELL: Bugs are just one stumbling block in this horse race. Money—or the lack of it—may be the ultimate factor in the browser wars. It reminds me of some of the old-West poker games: Gates is sitting there with a pile of chips but has a problem counting cards. Netscape is still in the game because it won a couple of wild pots. The other players folded, deciding to husband their bundles until the odds shift—if they ever do.

Pair of kings bets . . .

KANTOR: I don't believe money is that much of a factor because they both have enough. That isn't to say, obviously, that Microsoft doesn't have more, but that Netscape isn't low on cash. Microsoft can win a war of attrition, the way it did with the desktop applications market, but that takes years. And when it comes to the Internet, these years are a lot more significant than they were for word processors. What's necessary and popular today may

become tomorrow's Gopher. So flexibility is more important than deep pockets.

I remember a Netscape exec joking with us at one point after hearing that Microsoft had hundreds of programmers working on Explorer. He said, "Whew! If they only had a couple, then I'd be worried."

BUZZELL: Netscape deserves a bunch more credit than winning a couple of wild pots. It played the game well, and it delivered a good product. But companies with more reserves can take some losses and keep on playing. I'll have to agree with Jeremy in saying that Netscape's best move would be to specialize in what Microsoft hasn't yet swallowed—not just developing for the network computer (I'm flashing back to working on a VT220), but also developing for Unix.

SATCHELL: Split the market into lower-margin, high-volume sales for Microsoft and leave Netscape the smaller but higher-profit niche markets? Nothing new

to Microsoft. For Netscape, it means scaling down a few dreams, but it also provides a road to fiscal health. The result, in my view, would be healthy competition. After all, this is not a zero-sum game being played. Both can win, or lose.

Do you see a Netscape for Linux, Catherine?

BUZZELL: There already is one and has been one for a long time. My fear is that once Netscape loses browser share, we'll get all of our new developments from Bill "How many unrecognizable buttons can we cram on this toolbar?" Gates. I don't want a tip of the day, and I don't want a dialog box asking me if I'm sure I want to download the next Web page. Yes, I like Explorer, and I like the new functionalities that Microsoft has introduced, like floating frames. But I still wake up in a cold sweat from nightmares about MS Word 5.0 for the Mac.

CARL: I'd go even further than Catherine in my pessimism about a Microsoft-dominated world. Although I think Netscape, with a couple of noticeable slipups, has generally played the game brilliantly while far outmanned, I'm not sure it will be enough. Microsoft had \$614 million in profits last

quarter vs. \$7 million for Netscape. Microsoft profits for just last quarter are considerably more than all of the revenue Netscape has generated in its history. That's more than a small advantage.

My only consolation in a Microsoft-dominated world is that the company has made computers so unfriendly for the average user that I think a consumer electronics company could offer a friendly Web TV-type product that would have users leaving Microsoft—and computers as we know them—in droves.

KANTOR: All we need now is a Mac vs. Windows argument. Sorry Jeremy, I won't bite.

You all seem to be hedging here—Jeremy saying of Netscape's performance "I'm not sure it will be enough" and Catherine saying, "Companies with more reserves can take some losses and keep on playing." We've also covered the gee-wouldn't-it-be-nice ground. But the central question remains unanswered: Will Netscape survive Microsoft's efforts?

SATCHELL: Netscape will survive, but Microsoft is going to be the big money winner in this market.

BUZZELL: Netscape will survive by playing in the niche markets (the old anthropology degree is really helping me here). But I'm frothing at the mouth over the impending Microsoft win after spending two migraine-inspiring hours trying to navigate www.microsoft.com.

CARL: Yes, Netscape is too smart of a company not to survive Microsoft.

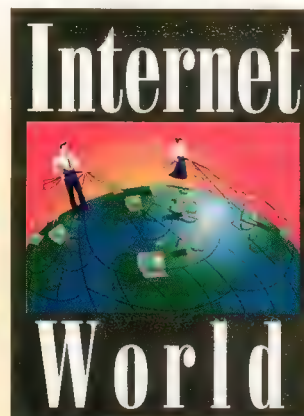
KANTOR: I'm with you. Netscape is going to survive. Not with 80 percent market share—figure on more like 45 percent to 50 percent. But its browser is the best there is, and it's not going to rest on its laurels. So it has at least a few years left—a lifetime on the Net. ■

Comments? Send them to kggroup@iw.com. Next month: Privacy in the Internet Age. It's more than just Big Brother watching you. Should we worry?

Catherine Buzzell is a freelance writer and Web developer who works for a major online service. Jeremy Carl is associate editor of WebWeek. Andrew Kantor is a senior editor at Internet World. Stephen Satchell is a longtime Internet journalist and ARPAnet veteran from 1971.

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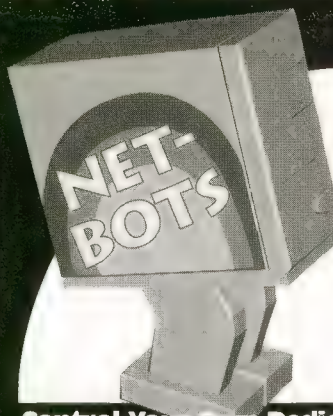
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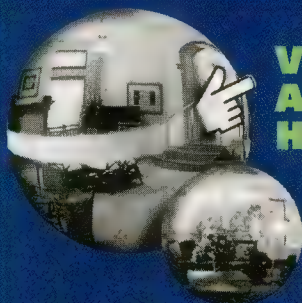
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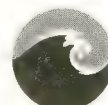
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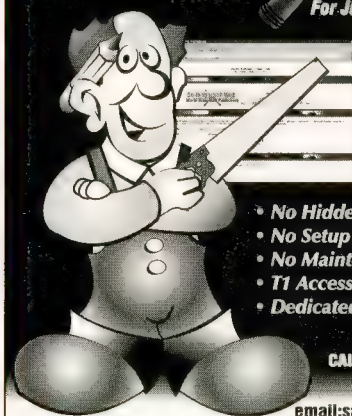
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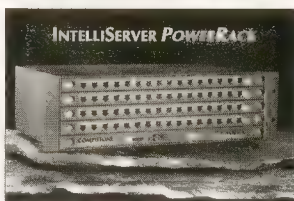
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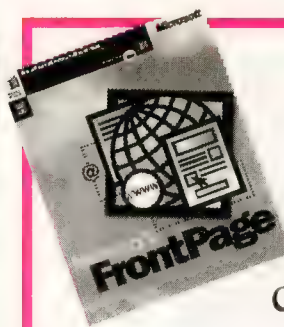
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140

141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280



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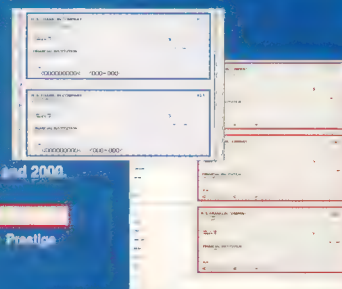
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ADVERTISER READER SERVICE # PAGE

A Foreign Affair	169	129
AIN	53	96
ACS/Compro	31	89
Agis	151	132
Synergy Software	145	125
Akorn Access(Concentrix)	141	129
Allegro Group	115	99
Ameritech	29	85
Anawave	3	91
AOL Prime Host	71	77
Artbeats	99	127
Berkeley Software (BSDI)	121	11
Best Internet Comm	127	42
Borderware/Secure Computing	5	CVR3
Capella Worldwide	37	125
Career Magazine	149	133
Cinecom	1	73
Claris	25	15
Classmates	59	129
Computone Corp	181	127
Datalytics	35	100
Delta Point	125	9
Designer Checks	157	133
Digiscape Communications	75	125
Digital Style	51	7
DSP Development Corp.	113	79
Dynamic Offerings	111	81
Earthlink	69	87
Electric Press	93	80
Farallon	85	CVR4
Foreign Relations	227	131
Faztech	221	126
The Golden Underground	281	126
Haystack Labs	33	81
Hiway Technology	103	120
Homecom	71	8
Homecom Communications	123	121
Hypercon	185	122
IAMAWASP	187	131
IBID	17	128
ICAT	107	37
Ideal Dial	243	123
IDT Internet	101	118
Infoaccess	49	50
Infomagic	97	124
Innovative Software	161	129
Intelliquest CMIS Study		95

ADVERTISER READER SERVICE # PAGE

Interactive Media Corp	205	129
Internet Business Solutions	201	123
Internet Direct	87	27
Internet Direct Canada	139	126
Internet Shopping Network	61	13
Internet World Canada '97	43	115
iWORLD		113
I.W. Labs		97
I.W. Co-op Marketing		102-103
I.W. International '97	63	117
Luckman	129, 15	29, 31
Luckman	11, 131	33, 35
L & L Telco	143	123
Media Synergy	133	94
MHA Comnet	41	109
Micro Forum	109	119
Micron	263	124
Microsoft		2CVR-1
MindQ Publishing	247	133
Mulkern Communications	207	131
Netbots	105	122
Netbox	27	127
Net Names	55	128
Net Page, Inc.	79	128
Net Shepherd	91	14
Net Win Ltd.	245	131
On The Net	19	128
O'Reilly & Assoc.	81	67
Pick Internet Connections	135	125
Pointcast		21
Prodigy	47, 241	23, 25
Public Eye	225	131
Qualcomm		5
Quotesmith	89	101
Q & D Software	183	122
Rent Net	39	122
Sea Change	77, 57	124, 128
Single Search	147	131
Softbyte Labs	203	127
Solar Systems	267	132
Solunet	163	127
Spring Internet World '97	83	106-107
Superhiway Sunglass	119	124
TCI	155	133
Teledapt	95	124
Telescan	153	132
Top Choice Systems, Inc.	167	131
US Robotics		60/61
UUNET Technology	7	71
Valise	117	123
Value Web	223	126
Van Nostrand Reinhold	73	72
Vayu Web	9	16-17
VIP Net Inc.	265	131
Wave Interactive	13	6
Web 2010	137	122
Webmate Technologies	21	19
White Pine Software	65	125
Worldsite	145	125

PRODUCT	COMPANY	PAGE	CONTACT
Accrue Insight	Accrue Software	24	http://www.accrue.com
ActiveX	Microsoft	22, 76, 52, 116-120	http://www.msn.com
AltaVista	Digital Equipment Corp.	36, 57, 58, 60	http://www.altavista.com
CNET Best of the Web	CNET	82-83, 84	http://www.cnet.com
CoolTalk	Netscape	104	http://www.netscape.com
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Excite Reviews	Excite	84-86	http://www.excite.com
FrontPage	Microsoft	22, 38, 51	http://www.msn.com
HTML Transit 2.0	InfoAccess	24	http://www.infoaccess.com
Infoseek	Infoseek Corp.	36, 40, 53, 57, 58	http://www.infoseek.com
InNetwork Publishing System	Interval Inc.	66	http://www.interval.net
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Internet Phone 4.0	VocalTec	104	http://www.vocaltec.com
Internet Xchange	NetXchange	106	http://www.ntxc.com
InterTrust Commerce Architecture	InterTrust Technologies Corp.	66	http://www.intertrust.com
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WebTalk	Quarterdeck/FutureLabs Inc.	104	http://web.futurelabs.com/home/
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THE NAME'S THE THING

Although few newsreaders support them anymore, many Usenet newsgroups have one-line descriptions for people who can't figure out what "alt.home.repair" is about. Match the description in the first column with the newsgroup it describes in the second. *Answers below.*

- | | |
|---|---------------------------|
| 1) alt! Who goes there? | a) alt.albus.freehand |
| 2) Focused Godless heathens. | b) alt.tv.game-shows |
| 3) Good for what ales ya. | c) alt.sport.darts |
| 4) It is. | d) alt.beer |
| 5) Jellybeans and all. | e) alt.caving |
| 6) Just look at these wonderful prizes. | f) alt.drugs.psychedelics |
| 7) Look what you've done to the wall! | g) alt.fan.ronald-reagan |
| 8) Make that wheel go 'round. | h) alt.pets.hamsters |
| 9) Pink elephants and jumping out of windows. | i) alt.revenge |
| 10) Spelunk. | j) alt.atheists.moderated |
| 11) The other hand is busy. | k) alt.anonymous |
| 12) Two wrongs trying to make a right. | l) alt.zen |

Answers: 1) k, 2) j, 3) d, 4) l, 5) g, 6) b, 7) c, 8) h, 9) f, 10) e, 11) a, 12) i

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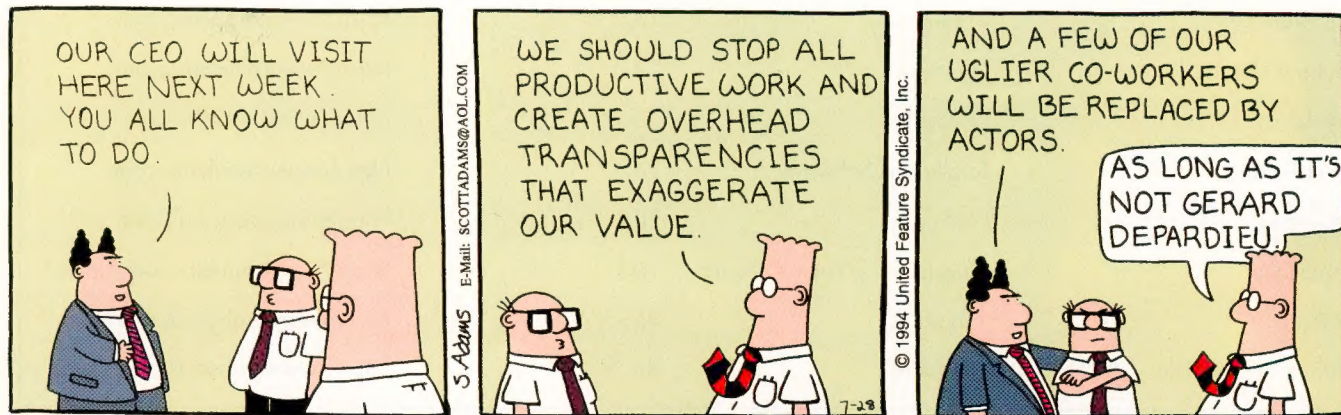
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